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Advertisers' Index Page 44.

# AMERICAN ARTISAN and Hardware Record

Vol. 87. No. 22.

620 SOUTH MICHIGAN AVENUE, CHICAGO, MAY 31, 1924.

\$2.00 Per Year



## PLECKER'S CONDUCTOR PIPE AND EAVES TROUGH

THE conductor and eaves trough replacement jobs you do this spring should be more profitable to you and more satisfactory to your customers.

For many years we have specialized in one brand of Conductor Pipe and Eaves Trough. This is Plecker's and our large number of customers have always found it above par in giving service and netting them a good profit.

Plecker's is made of Keystone Copper Bearing Steel. This steel is exceptionally durable, less affected by weather conditions than others and is famous for its rust and corrosion resistance.

Hang Plecker's and be sure of a good, long lasting job and for future business to follow.

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IN HANDY 10 FT.  
LENGTHS. WRITE  
TODAY for PRICES.**

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PEORIA, ILLINOIS

# THE SUPER-SMOKELESS FURNACE

**SUPER-SMOKELESS DEALERS  
PROFIT BY**

**INCREASED BUSINESS  
SATISFIED CUSTOMERS  
PROMPT COLLECTIONS**

**S**UPER-SMOKELESS Furnace dealers can build up a big business by furnishing their customers with furnaces that will burn soft coal smokelessly and with great efficiency, utilizing the smoke and soot as valuable fuel. It will be to YOUR interest to become a SUPER-SMOKELESS Dealer. Send for literature and Special Dealer Proposition.

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Meteor**

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*Pipeless Furnace*

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Therefore we offer the COZY Pipeless with the same guarantee of durable first-class material and careful workmanship as our regular COZY Pipe furnace.

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Let us tell you all about the COZY Pipeless and COZY agency for your territory.

*Write today for our  
illustrated catalog.*

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CRESTLINE, OHIO

Founded 1880 by Daniel Stern

Thoroughly Covers  
the  
Warm Air Furnace  
Sheet Metal, Stove  
and  
Hardware Interests

# AMERICAN ARTISAN and Hardware Record

Address all communications  
and remittances to  
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AND  
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### INVITING YOU!

The editorial columns of AMERICAN ARTISAN are devoted to the development and perpetuation of the Warm Air Heating, Stove and Range, Sheet Metal and Hardware industries. Its readers are cordially invited at all times to use this commonsense method of obtaining the advice they need for the successful conduct of their business.

If your problem is a knotty or technical one, submit it to the Service Department and secure the benefits of the opinions of other men. It is an exchange information department, and you are asked to relate your accomplishments and tell how you have surmounted difficulties. Wherever possible rough sketches or photographs should accompany the questions or suggestions, as they always make clear the points involved. Use this Service Department freely; it is yours.

Answers to all questions will be held strictly confidential if so desired by the sender. If no mention is made to the contrary, questions and answers will be published in the various departments of AMERICAN ARTISAN.

ALPHABETICAL INDEX AND CLASSIFIED LIST OF ADVERTISERS, Pages 44-46-48.





Illinois Glass Company's Plant at Bridgeton, N. J. Roofing and Siding Are ARMCO-Ingot Iron.  
William F. Cameron Engineering Company, General Contractors, Philadelphia, Pa.

***"Its small additional cost  
is money well invested"***

SINCE 1912 the Illinois Glass Company with plants at Alton, Illinois and Bridgeton, N. J., has used galvanized ARMCO-Ingot Iron for roofing and siding.

The roofs are subjected to the attacks of different chemicals, including sulphur fumes. But Ingot Iron has far outlasted other sheet metal used on the same building and is still in excellent condition.

No wonder they say: "Its small additional cost is money well invested."

Distributors in all principal cities.

*Write for interesting booklet:  
Building a Business with Iron that Lasts*



**ARMCO** **INGOT**  
**IRON**

TRADE MARK

The American Rolling Mill Co., Middletown, Ohio



## **Lower Prices Did Not Give Fourth of All Furnace Sales to One Company.**

Editorial  
of the  
Week

**A**CCORDING to a statement made in a recent advertisement boosting one of the Chicago daily newspapers as an advertising medium, a manufacturer of "hot air" furnaces, who operates exclusively through direct branches, sold in 1923 \$10,174,000.00 worth of furnaces to home owners and building contractors.

In the same advertisement it is also stated that 1921 census figures show "Total Sales of 113 Hot Air Furnace Manufacturers" amounting to \$29,820,000.00.

Figuring on this basis it would be fair to assume that 1923 sales of this group ran over \$40,000,000.00, so that the "direct sales" exponent may be counted as somewhere around one-fourth of the total amount sold by the 103 manufacturers.

Whether or not this proportion is even approximately correct, makes no difference.

The point is that this manufacturer did sell over ten million dollars' worth of furnaces in 1923.

How did he do it?

What advantage did he have—if any—over any local installer?

Let us take the latter question first:

It is a well known fact that every branch manager for this company is charged up with all that the traffic will bear, in the shape of production costs, freight, overhead and factory profit, to which he must add his own operating and selling expenses—so that he is no better off than the average progressive local furnace installer, so far as actual value or selling cost is concerned.

In the second place—still considering possible advantages—the branch manager is usually recruited from some other line of business. He knows little or nothing about the practical work of installation. He may have gone through a "high speed" selling course

at the main office and may have picked up more or less superficial information about layouts, etc., but when he actually starts out he labors under several handicaps as compared with the progressive local installer. He is a stranger. He is without actual experience. He possesses, possibly, some theoretical information with the application of which he is not familiar.

And yet—

He goes ahead and sells furnaces while many of the local installers in the same city complain that there is no business.

How? Why?

Not because his prices are lower, for quality of furnace and grade of work considered they are far from being low.

Not because he knows more or has more friends and acquaintances that will buy from him by preference.

No—simply because he starts to find out who may be in the market for a furnace, and because he keeps on that person's track until the sale is made, and because he keeps on hunting for prospects, all the year 'round, and developing these prospects into actual customers.

There is no other reason.

But, of course, the alibi artist is always on hand with his excuses, and the supposedly low price is the easiest sort of excuse he can think of; that is why it is used so often that there is hardly anything left of it but a shadow.

Shadows, however, have been known to scare people who believe in ghosts.

So, if you believe in ghosts you have a good excuse.

But the installer who is in business to make more than a mere living does not take that view of the situation. He goes after business—and gets it, at a profit.

## Random Notes and Sketches.

By Sidney Arnold

It was in the good old pre-Volstead days that Harry Hussie and Fred Nesbit were strolling down the streets the morning after the annual association banquet.

Hearing a band playing, they wandered over and Harry, who claimed to be a musician, said: "Don't they play the Sextette beautifully?"

"G'wan," said Fred, "that's the Barcarole, from the 'Tales of Hoffman'."

They argued until they noticed someone hanging up a sign, when they went over to see who was right.

"By gosh," said Harry, "we're both wrong. Look at the sign. It says 'Refrain from Spitting'," and peacefully they wandered on, hand in hand, happy once more.

\* \* \*

Henry Schwab, who makes Gilt-Edge furnaces, was in Chicago the other day and while we were swapping stories he told the following:

A certain town had bought a new fire engine, and the chief, gathering all his men together, suggested that an appropriate motto should be placed over the station.

The proposition was debated at some length, and finally one man said:

"I move the following motto: 'May this fire engine be like all the old maids in our village—always ready, but never called for.'"

\* \* \*

James L. Perkins, who has been selling steel and other supplies to sheet metal contractors in and around Chicago since the Lord knows when, says that he is good for at least sixty years more of it.

"Lew," as he is known to his hundreds of friends, has a photograph of an Indian in his office, taken when the aborigine was somewhere around 105 years old, and he maintains that if an Indian can live that long there is no reason why a white man who takes reasonable

care of himself can't beat that record by at least ten years.

Here's hoping that you live as long as you want, Lew, and that you will keep on adding to the number of staunch friends you have now—and there is no question about the latter part.

\* \* \*

S. A. Larson of the Central Copper and Brass Company was busy writing up an order the other day when the telephone rang. It turned out to be a call from a friend of his who was "stuck" in a Dodge automobile about four blocks away.

"What seems to be the trouble?" asked Larson.

"I can't make this — machine do anything but back."

"How is that? Have you tried all four shifts?"

"Sure," came the reply, "but all I can do is to reverse it every time."

It so happened that the voice at the other end of the wire belonged to a man who was on his way to the City Hall for his driving test. He had gone along all right from Larson's office on Clinton Street, but had been held up by the traffic officer at one of the crossings and when he wanted to start again had become confused and forgotten that the gear shift on the Dodge is different from that of most other cars. Larson had somebody go over and start his friend a-rolling along again.

\* \* \*

Sam Latty, Vice-President of the American Hardware Manufacturers' Association and the Kirk-Latty Manufacturing Company, was at the recent annual meeting of the stove manufacturers in New York City, and during our discussion of many other important matters, such as the size of stove bolts, the wet issue, the prospect of the election of Bill Bryan, expressed himself as thoroughly opposed to the bobbing of women's hair, except when they are sent to prison.

"I'm off your bobbed-hair friends," he stated very emphatically. "Saturday afternoon I thought I'd start home early and get a haircut before the crowd got there. What do you guess I saw in the first barber shop I entered? Four girls and three kids in the chairs, and seven men waiting for a chance! If the women want haircuts, that's their business, I suppose—but why grab off all the barbers on a working-man's Saturday afternoon?"

\* \* \*

Joseph L. Stearns, known among furnace men as "Joe," is putting a little more pressure on the men in his register factory to get orders out and make more to fill additional orders that he is going to secure, and there is a good reason, for about three weeks ago Miss Barbara Lucille arrived at the Stearns home in Detroit, so that he now has two young daughters to buy shoes for—and shoes cost real money these days.

Congratulations, Joe. I'll wait for the cigar until I see you.

\* \* \*

### The Big Idea!

I am the thing for which all men seek,  
The prize for which all men strive;  
The high and low and the brave and meek,  
The thrifty who still would thrive.  
Some quit too soon and some others fail,  
Some find me—a favored few;  
The world at large is upon my trail,  
For I am an "Idea" new!

I lighten labor and lessen toil,  
And lift the load from men's backs;  
I plant the seed and I till the soil,  
And put it in stacks and sacks;  
Some seeker sits in the midnight hours  
And ponders and works and schemes,  
'Til I—an "Idea"—dawn, whose powers  
Bring true his most cherished dreams!

'Twas I that Edison sought and found,  
And Franklin and Watt and Ford;  
'Twas I that proved that the world was round—  
Instead of a square, or gourd!  
'Twas I that Fulton and Howe and Morse,  
Marconi and Sholes and Bell,  
Made do the work of both man and horse;  
They sought—and I served them well!

Unwise are they who cease seeking me  
And cling to "old ideas" stale,  
And stick to the ways that "used to be"  
And follow the "beaten trail."  
But those who are thinking, night and day,  
And striving a plan to see  
To better the world, in some wise way  
Are going to capture me!

—James E. Hungerford.

## Whipp Explains Some of the Common Faults in Fan Design and Application.

*Says Many Engineers Believe It Only Necessary to Increase Speed of Fan to Create Proper Suction.*

**T**HIS is the fourth of the series of articles comprising the address on creating proper fan suction, by Frederick G. Whipp. The third installment appeared in our May 3rd issue, pages 18 and 19.

An oil film is maintained within a bearing by a constant pressure around the journal and as a pressure is a reaction to a resistance, then resistance must also be constant; therefore, it will be evident that the larger and deeper the channels the greater will be the variations of resistance. For similar reasons the oil channel should never be truly lateral, but always follow more or less a spiral course. The reason for this will soon be apparent if an imaginary straight line is drawn longitudinally along the journal's length. If a straight lateral channel were present on the bearing a maximum loss of pressure would be registered along the whole of the line on the journal every time it passed over the channel and the oil film momentarily destroyed.

If on the other hand the groove is spiral the imaginary line only passes a portion of it at one time, and assuming a certain axial direction of load pull, the longitudinal zone of pressure disturbance is only a section of the total length in that axial direction, and this state of affairs is the best that can be hoped for in practice.

It is a good expedient to chamfer one of the edges of the top half of the bearing along its length to within a short distance, say one-half inch, of the ends to act as a trap for foreign matter. The side to be chamfered depends upon the direction of rotation and the shaft should revolve towards the bevel so that the straight unbeveled edge of the lower half of the bearing acts as a scraper as it were.

If all four edges are chamfered the dirt arresting propensities will

be very much reduced and this should never be done.

I want now to consider fans with plain bearings and arranged for belt drive. It is assumed that adequate proportions have been allowed to preserve an oil film under fair working conditions. I use the word fair rather than normal in this instance, so as not to make the distinction between normal and maximum. A centrifugal fan has, of course, only one direction of rotation and as a good drive should always be arranged with the slack side of the belt uppermost a fan should always be driven from the front or discharge end. Circumstances sometimes prevent this being done, however, and a loss of efficiency has to be tolerated. A question of greater importance, however, is the position of the driving unit, as to how it affects the correct lubrication of the fan bearing. A plain bearing is nearly always provided with a lubricating device at its uppermost point, yet how often do we see the fan being driven from an overhead shaft and at a very steep angle? An engineer knows that a straight over-

head drive is bad, owing to the diminished arc of belt contact, so we will leave such a drive out of our calculations, but assuming that an upward drive is unavoidable and that a slope has been allowed to ensure a fair arc of contact, there is still the important factor of lubrication to be considered.

It was mentioned above that an even pressure in the bearing should be aimed at to preserve the oil film, but with belt pull, unless the duty is very light, such conditions cannot be wholly obtained and certainly not with an upward drive, unless the angle made with the horizontal plane is very slight.

Further, and this is the crucial point of the whole matter, the lubricating medium should enter the bearing at a point where the pressure is lowest, or exactly opposite the direction of belt pull.

*(To Be Continued)*

No matter how conscientious a man may be in observing precautions against fire, the adjoining property of another, who is neglectful in this respect, is a constant menace, not only to the immediate neighborhood, but to the whole community. Each citizen should feel it his duty to take protective measures for the safety of himself and the community, and should be empowered by the law to do so.

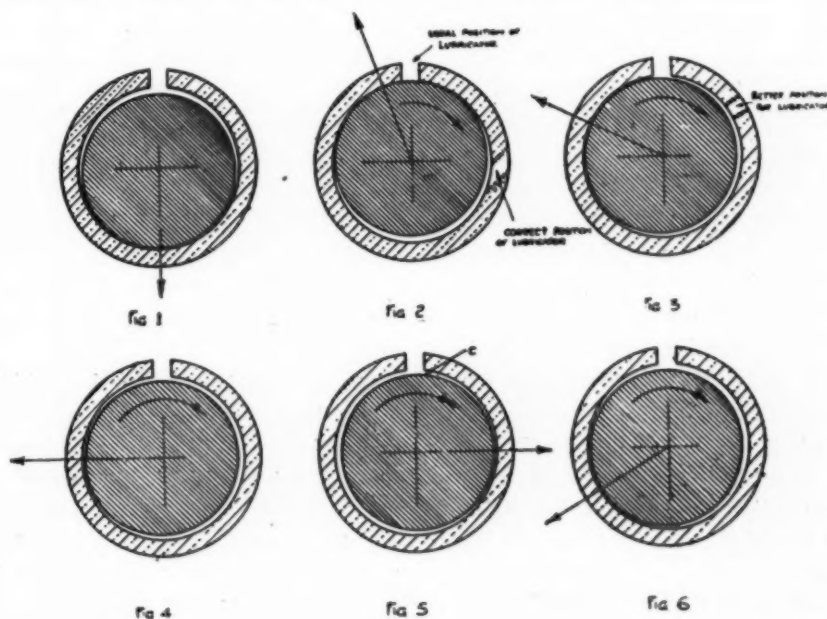


DIAGRAM 1



## *Can Noise Be Avoided and Safety Assured with High Speed Ventilating Fans?*

*Engineers Are Not Agreed, but Specific Cases Are Cited Where High Speed Caused No Trouble.*

**A**T A recent meeting of electrical engineers, F. R. Still, of the American Blower Company, made the statement that "it has been determined by careful tests that these fans (heating and ventilating) cannot safely be installed in churches, schools, theaters, music halls or auditoriums if the tip speed of the impeller has to exceed 6,500 feet per minute."

Fan manufacturers, however, are by no means agreed upon this point. For instance, at the same meeting of the New York Section of the American Institute of Electrical Engineers at which Mr. Still's paper was read, another paper was presented by C. A. Booth, of the Buffalo Forge Company, in which he told of the success which had been achieved in designing a fan blade which could be operated at speeds considerably higher than 6,500 feet per minute for this class of work. His discussion of this matter, which is now particularly apropos, is given herewith, in abstract:

"It is not so very long ago," he said, "that motors have been in nearly universal use for these ventilating systems, low pressure steam engines having given satisfactory service for many years, until the wide application of the electric drive crowded them out. When motor drives for ventilating fans were first becoming general, the steel plate fan, so-called, was in common use, with a speed which was much too low for direct connection to motors, unless price and efficiency were to be entirely disregarded.

"With the introduction of the multi-blade fan, the first step was taken for the increase in operating speeds, and it became possible to use direct drive, in many cases without requiring the resources of a state institution to underwrite the expense, but, even so, the operating speeds were far from being desirable to the motor manufacturer.

"Along with the introduction of the multi-blade fan, engineers began to experience unforeseen difficulties in getting the results upon which their figures were based. Accustomed to design a system of distributing ducts and to select a fan with but one capacity rating for a given speed, they found that the multi-blade fans then on the market were much more sensitive to operating conditions than the older forms of steel plate fans, and instead of having the air delivered into the building within a very small percentage of what was expected, the systems were apt to fall far short, or to exceed the desired amount, with possible serious danger to the motors.

"The cause of this unforeseen difficulty was in the form of the pressure-volume characteristic possessed in common by all multi-blade fans at that time on the market, and which had blades with a considerable forward curvature in the direction of rotation. These fans, with a shallow series of blades, developed a high velocity of air by impact, but a relatively small amount of static pressure, due to centrifugal action. For this reason the fan, if placed in a properly designed housing in which the high velocity of the air leaving the tip of the wheel was converted into static pressure, would at normal rating operate efficiently, but had a strong tendency to overload or underload, should the resistance of the system be only slightly less or more than that developed by the fan at normal rating.

"It remained to find a fan which would have a pressure-volume characteristic more like the old steel plate fan, but with the compactness and other desirable features of the multi-blade type. Such a fan has been on the market for a number of years and satisfies most requirements for ventilating work. It is

true that the operating speeds, in most cases, are not high enough to permit the use of standard motors coupled to fan shafts, although this may be done in the smaller sizes, while in larger units the motor frames required are much nearer those ordinarily used for belt-driven units of the same power, and the difficulties of design are therefore made simpler.

"When other conditions remain the same, the inclination of a centrifugal fan blade determines the velocity of air passing through it, hence with a fan wheel of given size operating at a certain speed and with blades of the same radial depth, to tip the outer edge of the blade backward, away from the direction of rotation, will cause a reduced velocity; that is, it will be necessary to operate the fan with backward curved blades at a higher speed to produce the same velocity. Inasmuch as this velocity is converted into static pressure, the fan housing being identical in either case, the fan with backward curved blades must operate at a higher speed, the speed difference depending on the inclination which may be secured without impairing the mechanical efficiency of the fan."

At another point Mr. Booth said: "When multi-blade fans with forward curved blades were first used, the increase in the number of noisy ventilating systems was at first laid to the higher speed at which these fans ran, but, in most cases, it was found that noise was due not to high fan speed, but to high velocity of air in the piping system, because of the tendency of fans of this type to overload and deliver air quantities in excess of the requirements. To specify fans at slower speeds would hardly cure the trouble if the fans still ran at critical pressures and the resistances of the systems were still overestimated. The double curved blade was found not so sensitive to resistance vibration, and therefore to run closer to the predetermined capacity when changes in resistance occurred, so that the double curved blade fan, besides being no more noisy inherently than a

forward curved blade fan, is less apt to overload and cause noise."

Mr. Booth presented a tabulation showing a comparison between the speeds of the two types of fans required to fulfill the architect's specifications as to air quantity and static pressure for the Statler Hotel in Buffalo, in which Turbo Conoidal fan speeds ran uniformly higher than corresponding units of the Niagara Conoidal type, while the horse-powers ran uniformly less, with two exceptions. The high-speed fans as listed have been installed and operated for a number of months and Mr. Booth states that there is no perceptible noise, mechanical or otherwise, in any of the spaces which are ventilated. He points out that unusual care was taken in the design of the ventilating ducts and the installation of the apparatus.

Another tabulation covers a case where it was desired to use alternating current motors and the use of high speed fans for ventilation. Here it was possible to use direct connection, instead of geared drive, belted fans being out of the question. As in the previous table, the speeds of the double curved fans ran uniformly higher than those of the forward curved type, while the horse-powers, for the most part, ran lower. The cost for high speed motors and gears came to \$5,931, while the cost for direct-connected motors came to \$5,982.

"The speeds," continued Mr. Booth, "were suitable for 60-cycle motors, and the cost of these low speed motors proved to be almost identical with the cost of standard 60-cycle squirrel-cage motors, plus the cost of the gears."

#### *New Giant International Heater Ad Picks Up the Berries.*

The purpose of an advertisement like that of a salesman is to make sales. There is one path and only one path by which that sale can be made and that path is to first arrest attention, then arouse interest, then create a desire for possession

and finally to make the prospect form a resolution to act. If the advertisement fails in any one of these, the sale will not be consummated.

The International Heater Company, Utica, New York, has just issued a replica in large size of its advertisement which ran in the *Saturday Evening Post* for May 10th, 1924. This is being issued in the typical wall board size and is called the Giant Ad.

The illustrations in this ad are certainly well designed to arrest attention and create a resolve to purchase.

#### *Leon J. Greer Utilizes Long Service Argument to Push Homer Furnaces.*

There are few men either in the Warm Air Heating or Sheet Metal fraternities who have not at some time or other heard of the Homer Harmony Hummers and their "Strong Leader." These men have made a name for themselves because of their ability to entertain and please.

There is, however, little entertainment in buying a furnace, you will say; but there is a great deal of

pleasure to be derived from making and selling a furnace that pleases and satisfies the customer.

The accompanying illustration reprinted from the *Pontiac Michigan Press* is one of the instances of how the Homer furnace is being pushed by the installer, backed up by the manufacturer.

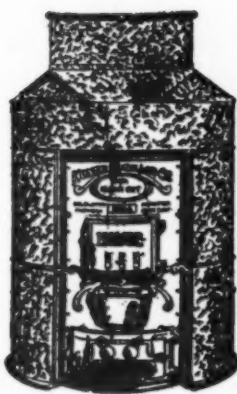
Here is a furnace installer who has reasoned that it is unwise to advertise too little, and it is equally unwise to advertise too much.

He has fit his advertising appropriation to his business and is going about building the business in a moderate, steady, rational manner, feeling his way along rather than first plunging away beyond his means and then stinting to catch up.

There is no evidence of a jerky motion, but rather a well seasoned plan of action; a steady pull upon the draw bar and a gradual gathering of speed as the power increases; a pushing of the throttle up one notch at a time, with the hand always ready to alter the speed to the needs of the business.

If sales people in a store are slow and sleepy, it is pretty certain the boss himself is none too wide awake.

### **Costs Little to Buy and Less to Operate**



Homer prestige has been earned by 12 years of the most satisfactory service in thousands of homes. Behind every one of the furnaces stands the Homer organization and one of the largest modern factories in the world devoted exclusively to the manufacture of warm air furnaces.

So you can depend on this Homer, which is made to last a lifetime and which costs little to buy and less to operate; which burns hard or soft coal, coke, wood, slack, natural or artificial gas; and which delivers the maximum number of heat units from the minimum amount of fuel consumed.

## **LEON J. GREER**

54 West Lawrence St.

Phone 534-W

Advertisement Stressing Economy Feature.

## Here Is the Information That Harry Hussie Wants About Those Bungalow Furnace Jobs.

*Floor Plan Shows Simple Layout for Installation Which Has Proven Satisfactory During Cold Weather.*

ON PAGES 21 and 22 of our May 10th issue there appeared an article about a series of furnace installations in brick bungalows in one of Chicago's western suburbs.

The houses were all alike, four rooms and bath, with frame porches in the rear. The price per installation was \$255.

Among the many comments that

we have had on this article is the following from Harry Hussie, secretary of the Western Warm Air Furnace and Supply Association:

TO AMERICAN ARTISAN:

I am very much interested in the article on page 21 of your issue of May 10th, entitled, "Will Real Estate Operators Pay a Fair Price for a Good Furnace Installation?"

I wish to compliment the firm of Reichmann & Maidert, of Cicero, Illinois, on their salesmanship, as the firm that can sell an 18-inch furnace, with three warm air and one cold air pipe, for \$255 can certainly make a little money.

I think it would be very interesting, however, to many of your readers, if you would publish a floor plan of the houses, thus heated. It would not be necessary to have an exact plan, but I should like to know the size of the houses and the approximate amount of glass surface.

I hope that you will be able to give us this data, at an early date, as such matters as this are of the greatest interest to your readers engaged in warm air heating.

With kindest regards, I am

Yours very truly,

JOHN H. HUSSIE.

Omaha, Nebraska.

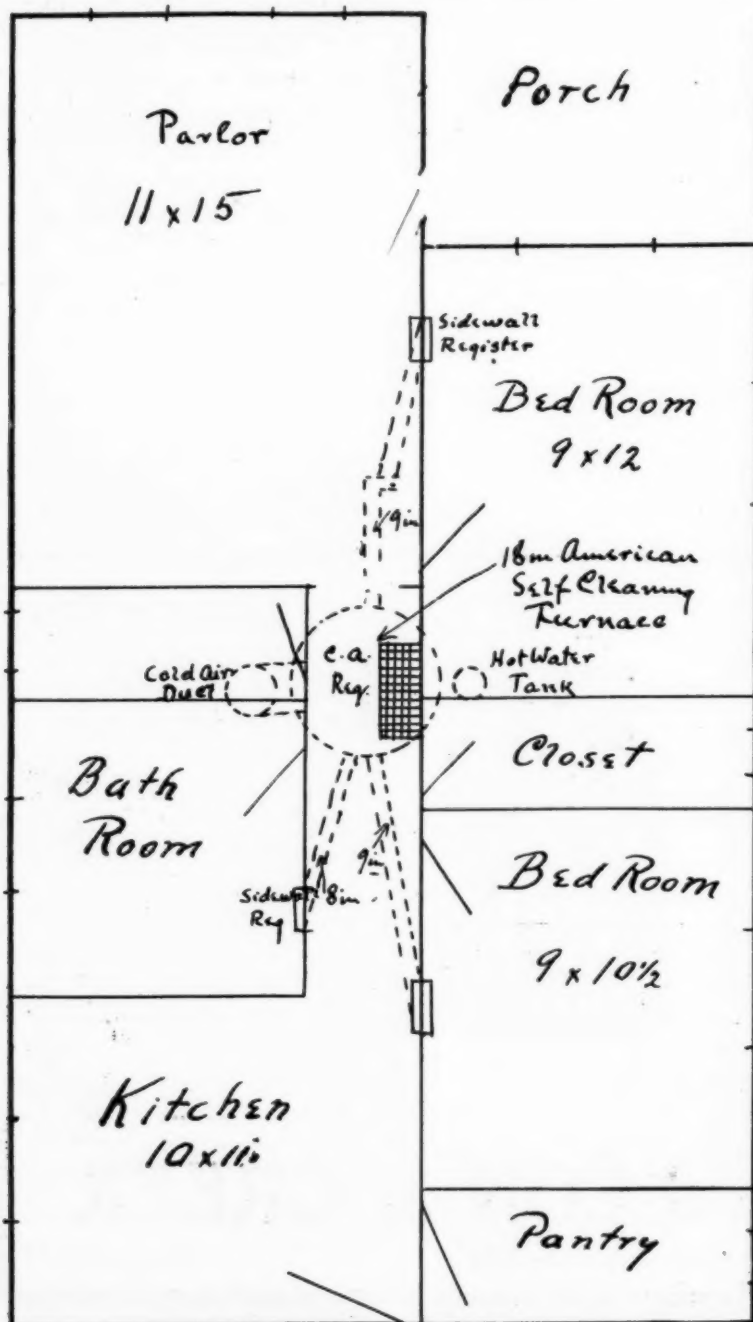
In compliance with Mr. Hussie's request we had a sketch made of one of these houses, and it is reproduced in the accompanying illustration, which gives most of the information our friend seeks.

In addition, it is to be noted that the basement ceiling is nearly seven feet in clear; that these houses all face south; that each furnace has a hot water coil; and that the houses are built of brick, with about five feet of space between them.

### Rudolph W. Menk Resigns as Manager of Furnace Department of Excelsior Steel Furnace Company.

Rudolph W. Menk, who has for many years been prominent among the progressives in the warm air furnace industry, has resigned from his position as manager of the furnace department of Excelsior Steel Furnace Company, effective as of May 31st.

Mr. Menk has been associated with the company, directly and indirectly, since 1910 and was made manager in 1915. He has served on important committees of the National Warm Air Heating and Ventilating Association; he was president of the Western Warm Air Furnace and Supply Association in 1922, and



Typical Floor Plan for Furnace Installation in Four-Room Bungalows.



is chairman of the joint committee on Standardization of Registers.

"I have as yet no idea of what I am going to do," said Mr. Menk on Tuesday, "but I expect to stay in the warm air furnace game, and



Rudolph W. Menk.

right now I am busy on my report to the Western Association, which will meet June 11th, and I will have something to say then, but not about my future job."

Mr. Menk will take a vacation for a little while at his home, 118 Buell Avenue, Joliet, Illinois, where he may be reached after June 1st.

### *Society of Heating and Ventilating Engineers to Meet at Kansas City June 10 to 12.*

The American Society of Heating and Ventilating Engineers has mailed invitations to members for the semi-annual meeting of the association to be held at the Hotel Muebach, Kansas City, Missouri, June 10 to 12, 1924.

Accompanying the invitation is a mailing card which Secretary Haughten requests each member to fill out and mail as soon as possible.

### *Comfort Is the Outstanding Emotional Appeal for a Man.*

The outstanding emotion appeal for men is comfort. The appeal to comfort is one that many salesmen profit by—and one that should be

considered in a serious light in selling a heating plant. "Comfort" means "a state of quiet enjoyment." The appeal to comfort, therefore, must necessarily be strictly along the lines of enjoyment.

In arousing the motive, comfort, the salesman must use illustrations, paint word pictures, suggesting strongly the enjoyment to be derived from the thing—the comfort and

convenience of owning and using it.

Suppose the salesman is trying to interest a prospect in a heating plant. It may be a very expensive one, but if the picture the salesman paints of the extreme comfort of the heating plant vividly suggests the acme of comfort if he has the prospect thinking, the expense can almost be forgotten, or at least justified in the prospect's mind.

## *Work on Educational Research Residence at Urbana, Illinois, Is Progressing at Good Rate.*

*It Is Expected That This Fine Building Will Be Ready for Use in Time for Mid-Year Meeting.*

THE Educational Research Residence, which the National Warm Air Heating and Ventilating Association is having built in Urbana, Illinois, is well under way, and is expected to have it all completed for the mid-year meeting of the association, early in December.

Payments of the assessment made on each member are coming in promptly and when the assessment is fully paid the member will receive a handsomely engraved certificate which will indicate that he has contributed his share of the financial obligation which was un-

dertaken by the association in order to provide a place where tests of warm air furnaces and kindred appliances can be made under actual living conditions.

It is a pity, however, that a considerable number of furnace manufacturers, who are bound to share in the benefits that are sure to come as a result of this gain of definite, correct and concrete information, do not seem willing to assume their fair share in the cost of maintaining the magnificent work which is being carried on, under the supervision of Professor Willard and his efficient



Facsimile of Certificate Issued to Members of National Warm Air Heating and Ventilating Association Upon Full Payment of Assessment for Educational Research Residence at Urbana, Illinois.

staff, by the National Warm Air Heating and Ventilating Association, to place the warm air furnace industry on a higher footing.

***Lennox Furnace Company Took Advantage of "Home Beautiful" Exposition in Syracuse, New York.***

In the accompanying illustration is shown a view of the exhibit of the Lennox Furnace Company at the Home Beautiful Exposition held recently in Syracuse, New York.

B. C. Taylor, assistant secretary-treasurer of the company, states that the exhibit created a great deal of interest and that a considerable number of sales came as a direct result.

Note the large sign stating that Torrid Zone furnaces will be made in the Syracuse plant. A show card also gave the information that all business east of Ohio will be done from the plant in Syracuse, New York, located at 1417 North Salina Street.

In the larger illustration Sales Manager R. T. Wasson has his salesmen lined up in front of the main office building at Marshalltown, Iowa, at the right of which will be noticed a portion of the new sheet metal department building, which is the third unit in the com-

pany's new factory group. The white haired gentleman almost in the center—in front of the light bracket—is none less than Brother Wasson

ler, Elkhart, Indiana, one of the company's largest customers. Mr. Roland was one of three furnace installers who were present on the oc-



**Exhibit of Torrid Zone Steel Furnaces at the Home Beautiful Exposition in Syracuse, New York.**

and the gentleman at his right, holding his Fedora is the "Big Boss," President D. W. Norris.

The cross on the window points out V. D. Roland of Roland & Mil-

casion of the annual gathering of the salesmen and gave an interesting talk.

Competition never sleeps.



**Lennox Furnace Company's Salesmen and Three of Their Retail Distributors at Sales Convention in Marshalltown, Iowa.**

## *It Is Necessary That You Know Definitely the Business Possibilities for You in Your Locality.*

*Without Such Definite Knowledge Your Buying and Selling Is Practically a Pure Gambling Proposition.*

"HOW much do you really know about the business possibilities for you in your locality?" is the keynote of a well written editorial in "Fitting Remarks," the interesting house organ of the W. E. Lamneck Company, Columbus, Ohio, manufacturers of Simplified furnace pipe and fittings, which is reprinted herewith:

### **Cultivating Virgin Fields.**

"It's not always the man who has the original bright idea who makes a go of things. Many a clever idea is born to waste its fragrance on the desert air simply because the push and insight to apply it is lacking.

"Don't hesitate to take another's idea or an old idea if you can add something of your own to it. Plagiarism—taking credit for another's idea—is detestable—but if you can see where that idea can be improved, you have contributed as much as the original person. And the reward goes to the one who can make the most out of it.

"The history of successful men is always the history of men who saw the simple things. Anyone can see the general trend and follow the open path. It is those who can see the faint side paths and short cuts who make themselves known.

Particularly in selling does this apply. Finding sales where no sales seem to exist, finding business tucked away in the brush on the side of the road is finding extra profit—the profit which may mean the difference between ordinary success and outstanding achievement.

"There are countless examples of the truth of this axiom. Linoleum, for example, was but a by-product of the cork industry in this country as long as linoleum was looked upon solely as a covering for kitchen floors. It was when an energetic young advertising man started out to convert American housewives to

the European custom of using linoleum all over the house that linoleum-making became an outstanding American industry with cork-making reduced almost to the subsidiary class.

"Yeast has long been as much a health-building product as it is today. But it took wide-awake men, not content with existing markets, to build up the market for yeast as a health builder. It was the same with California raisin-growers, who converted the country to the tune of 'Have you had your iron today.' And Listerine—it has always been

efficient as a mouth wash. But who realized it until the advertisers got busy?

"There are just such situations in your business today. In your locality there is business no one has thought of going after. Or, if a competitor has thought of it—he either didn't know how to go after it or lacked the will.

"We wish we could tell you where it is. We can't because your business is localized. All we know is that it is there, because there are always new openings which only the alert see.

"Take the possibilities in your town and check them off one by one. Then go over them again and look into every field. Ideas are forthcoming oftentimes in proportion to the amount of effort we expend trying to find them."

## *Pressing Need for Manufacturer, Installer and Public Cooperation Shown.*

*Following Article Shows How Uninformed Furnace Owners Are Misled Regarding Humidification.*

THE fact that warm air furnace owners must resort to such methods as those given hereinafter, taken from Dr. W. A. Evans' column devoted to "How to Keep Well" in the *Chicago Tribune*, in order to secure proper humidification certainly shows a pressing need for greater coöperation between the furnace manufacturer, installer and the public.

### **More Furnace Advice.**

J. C. R. writes: "A house heated by a hot air furnace was treated as almost a puzzle in your column recently. I can help out a little.

"Our furnace is large and has a cold air intake which is usually open. There are ten distributing air pipes. The house is an eight-room village residence.

"The top of the furnace proper is flat, and the top of the casing is also flat and is about six inches above the furnace top. Into this hot air chamber we shove, from the front, two open pans of galvanized sheet iron, each 4x8x40 inches.

These, together, hold more than nine gallons of water and are filled by a hose.

"In clear, dry, cold weather these pans empty themselves in twenty-four hours. In damp weather, with a light fire, the water supply will last two days or more. After being thus emptied two or three times, the pans are drawn out and scrubbed to rid them of the lime that comes from artesian water.

"The water pan that comes with the furnace is placed at the bottom simply for ease in setting up or overhauling the furnace."

### **He Uses Pig Trough.**

O. A. F. C. writes: "Put a pig trough in your furnace.

"A friend told me of this scheme. I ordered a four-foot galvanized iron pig trough, costing \$1.75. The furnace man came and installed it. To do this you cut off the rectangular support at one end of the trough, cut a V-shape opening in the upper part (hot air chamber) of the furnace, and fit the trough right



in through this V cut. Perhaps six inches projects into the furnace room. The V cut is then turned back and fitted into the trough in such a way that it prevents the escape of hot air, as only a small open place is left between the lower part and the cut V and the floor of the trough. Since 'water seeks its level,' no heat is dissipated. Fill the trough with water by pouring it into the projecting six inches of the trough, which probably holds about five or six gallons of water. In one hour after the installation was made every window showed condensed moisture or 'steam.'

"I am so delighted with the proved success of this device that I had an added water connection made, so now I have a faucet right over the trough, and it is the least possible effort to keep it filled. The

furnace man does not make a complaint of it.

"A surprising amount of water is evaporated and the comfort of the atmosphere through its increased humidity is undebatable."

### **AMERICAN ARTISAN Costs Nothing Compared with Financial Help Subscriber Receives.**

Bouquets are pleasant to receive and we thank Mr. Hight for the following:

TO AMERICAN ARTISAN:

I am enclosing check to renew my subscription for two years.

The price of AMERICAN ARTISAN is nothing compared with the financial help one gets from its columns.

Very truly,

B. A. HIGHT.

Mt. Pleasant, Michigan.

## **Western Warm Air Furnace & Supply Association Will Meet June 11th in Des Moines, Iowa.**

### **Secretary Hussie Tells About Plans for the Business Sessions and Entertainment.**

SECRETARY Harry Hussie of the Western Warm Air Furnace and Supply Association tells in the following letter of the interesting program of business and pleasure which has been arranged for the mid-summer meeting of the association—to be held Wednesday, June 11th, at the Savery Hotel, Des Moines, Iowa:

TO AMERICAN ARTISAN:

Referring once more to the meeting of the Western Warm Air Furnace and Supply Association at Des Moines, Wednesday, June 11th, I call your attention to a few facts that should make you eager to attend.

The morning session will be at the Savery Hotel and will be called at 10 o'clock sharp. There will be no set speeches. We will get immediately to business. The Furnace Code Committee and the Standardization Committee will have reports that will take up the greater part of the forenoon.

At noon, Vice-President Blair

Quick will have cars in readiness to take members and visitors out to the Country Club, where lunch will be served.

After lunch, we will have our "Start Something Hour," which will be held at the Country Club. All present are requested to bring up some subject for discussion. In other words, to start something.

Following this a game of golf will be arranged and members and visitors are requested to bring their golf clubs with them. This certainly will be interesting. The writer, who has never played under 100, will challenge anyone who is not a member of the association to play a game of golf to see whether he joins or not. For those who do not play golf, other games will be arranged.

Following the games dinner will be served at the club.

You will see that this is going to be a very extraordinary meeting, and every man interested in warm air heating is invited to come, whether he belongs or not. We be-

lieve that, as usual, the Western Association will establish a precedent, which will govern future meetings of the furnace industry.

Yours very truly,

JOHN H. HUSSIE.

Secretary.

### **Philadelphia Installer Capitalizes on Qualities of Sunbeam Furnace.**

Warm air furnace installers of the wide-awake class are not adverse to advertising the furnace which they install.

Among the latest of those progressive furnace installers' advertisements to come to our notice is that of Frederick Labin & Company, Inc., Bread Street, Philadel-

"WE DO IT RIGHT AND GUARANTEE IT"

## SUNBEAM

PIPE and PIPELESS FURNACES

**"TALK IS CHEAP" but HEATING IS A SCIENCE**

When You Buy Heat—Get What You Pay For  
COMFORT—QUALITY—ECONOMY—WARMTH  
NO SMOKE NO GAS NO DIRT

You can secure all these things with SUNBEAM FURNACES  
DO NOT BE DECEIVED, SUNBEAM FURNACES ARE LARGER. They are BETTER. They COST LESS MONEY.  
SEE SUNBEAMS before you buy any furnace

This is not the place to boast but there must be some reason why so many thousands of users prefer SUNBEAMS (regardless of cost).

ANY DEALER WILL SELL YOU SUNBEAMS  
If he "squirms" or "hedges" we will give you the name of a dealer who will give you what you ask for.

Frederick Labin & Co. Inc.  
Heating Experience Since 1884  
HOWARD MILLER, President  
237-239-241 BREAD ST., PHILA.  
Market 2344-2345  
Main 5113  
Rene and Vine Streets  
Between 2d and 3d

Sunbeam Advertisement Taken from Philadelphia Record.

phia, taken from the *Philadelphia Record*. The ad was originally 4x4¾ inches.

It will be noted that the Labin Company has hit the nail on the head when saying that "talk is cheap," but heating is a science. There is only one objection to the wording of this ad and that is that there is no mention of warm air. Heating is a science, yes, but why not emphasize warm air heating? Why not specify?

Everyone in the industry knows what the Sunbeam furnace is, but the public does not. Perhaps the advertiser had a purpose in leaving out mention of warm air.

Some people put everything on their backs to make a front.

## Seeing Is Believing, Says Wisconsin Warm Air Furnace Installer, So He Shows Them.

*Actual Demonstration of Smoke and Gas Consuming Device in Furnace Brings Many Customers.*

"THE proof of the pudding is in the eating thereof," is an old and true saying, and it holds good in selling warm air furnaces, just as it does around holiday time.

In Wausau, Wisconsin, there is a warm air furnace installer who believes in going after business and in making the proper use of the selling helps that are furnished by the manufacturer.

This installer, the Wisconsin Heating & Supply Company, recently ran in the Wausau papers a series of advertisements of which the accompanying illustration shows

a sample. It will be noted that a demonstration of the furnace is the feature, and from the reports that came to us, the advertisements brought several hundred people to the demonstration.

Out of these there materialized a considerable number of prospects, some for new homes, others for replacements and many with troubles to solve, etc.

The demonstration was held on a vacant corner lot. A Utica Super-Smokeless furnace was set up, a smokestack of 8 inch pipe, 22 feet high, was attached, a fire built with

the cheapest grade of coal, and no soot or black smoke appeared.

Through a mica "window" in the clean-out door the spectators could see the smoke and gasses burning within the radiator, just a light film of smoke being visible at the top of the improvised "chimney."

The heating engineer representing the Utica Heater Company was J. H. Svoboda, who is well known among the furnace installers in Illinois and Wisconsin.

### *Get Busy on Those Collections.*

Now is the time to get busy on this important work. Many a business has as much capital scattered over the town and county at loose ends as it has on its shelves and in the warehouse. It is high time to get it into the bank. Where would you be if you let your accounts with your jobbers go unpaid month after month? Your shelves would soon be empty. Make your customers feel the same responsibility on their credit as you do on your own. If you can't get the money, get a settlement and the interest that you have to pay or that your capital would earn in any other investment.

Don't try to run a bank in connection with your hardware store, or if you must, do it on a banking basis, and have your terms as distinctly understood as your banker or your jobber exact from you. Uncertain terms, slow and poor pay accounts will undermine the best business ever organized.

The growing responsibilities and constantly augmented increase of the cost of doing business make it imperative that merchants adopt more stringent methods in conserving their investment of time and money.

This is something that should be closely considered in the counsels of our business enterprises. Would it not be better to swallow the overhead, even though it bite deeply into profits, than to have a backwash from overproduction and to kill merchants by overcrowding beyond their absorptive powers?

## Why Waste 50% of Your Fuel?

Did you ever consider the fact that when you buy coal you pay for all the gas and smoke which is fully half of the heat value of coal? This you have been wasting. It is the same valuable gas which your gas companies extract and pipe to your home range.

This cannot be successfully utilized except through The Bunsen Principle.

There are many of the so-called hot blasts, slotted fire pots, etc., these are merely slight attempts at perfect combustion.

The Public Is Entitled to the Actual Proof of Facts

In order to substantiate these, we have arranged for an Actual Firing Demonstration and Will Prove to Your Satisfaction That

### Utica Super Smokeless Warm Air Furnaces

Will utilize the smoke and gas and give you a greater volume of heat. Smokelessly and without soot, you can burn cheap coal and reduce your fuel cost.

The Utica Heater Co. Heating Engineer will be here and give you any information you may want, so bring along your heating problems and talk them over with our engineer. Service is absolutely free.

**Demonstration Will Be Given At**

**Fifth and Jefferson Streets, Wednesday and Thursday Afternoons and Evenings, April 23 and 24**

Be Sure to Come and See This Wonderful Heating Plant in Actual Operation.

## Wisconsin Heating & Supply Co.

Warm Air Heating, Roofing, Etc.

FIFTH and JEFFERSON Sts.

PHONE 4809

Three Column Newspaper Advertisement Inviting People of Wausau, Wisconsin, to Witness Demonstration of Warm Air Furnace.



# Longitudinal Cornice Seams Should Be Made to Shed Water Immediately.

*Water Should Not be Permitted to Seep in, as This Impairs the Life of the Entire Cornice.*

Written Especially for AMERICAN ARTISAN by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

IN the making of architectural sheet metal cornices, a great variety of joints can be designed and employed; the main feat, however, is to hold the different parts of the metal together to prevent leakage. When this is done everything that can be expected is accomplished, and any freak designs or difficult edges to form have no value from a construction standpoint. One of the most difficult problems is to always make joints to shed the water. Never design a joint that permits the water to seep in in any way, because that will impair the life of the cornice. By making substantial jobs, they become public monuments for the hundreds and thousands of people to see. To these they can raise no objections and, therefore, will not object to including it in their buildings.

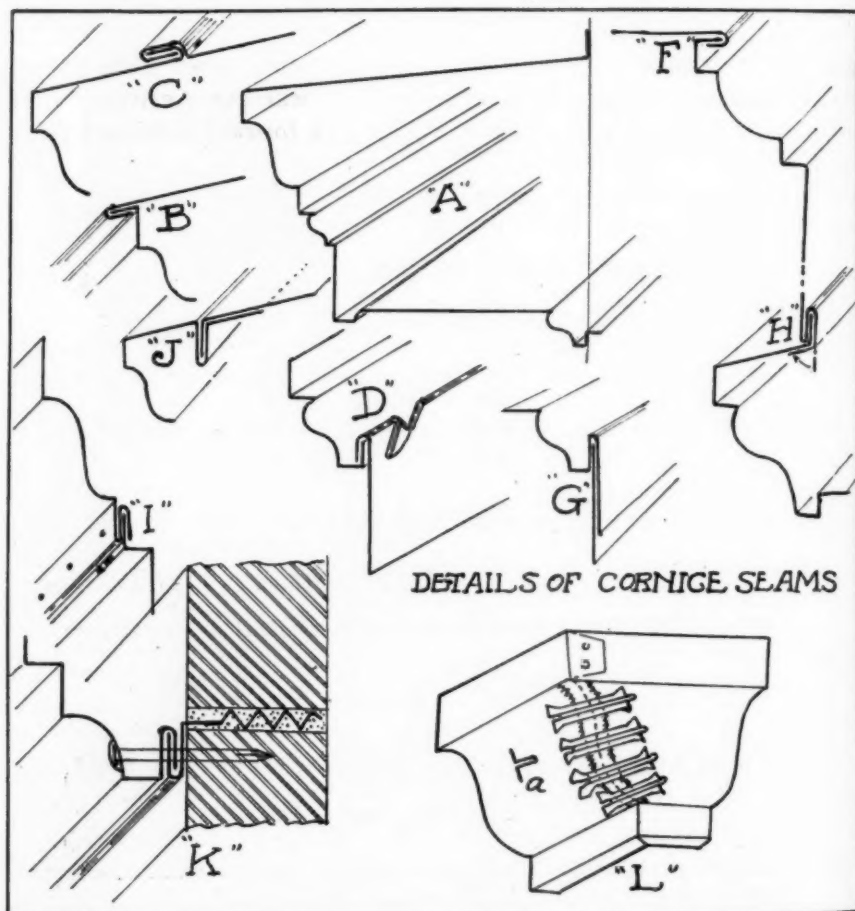
So in detail "A" we have a cornice section that is of a small design and can be made from one sheet of metal. There are many such jobs which can be made out of one sheet, even though sheets up to thirty-six inches wide must be employed. When the sheet metal contractor figures on a cornice job, it is always best for him to determine approximately the girth of the cornice, to see where joints are required and where they can best be made, and what size sheets should be ordered. Employers who order sheets as becomes the job will have less waste of material, as well as take less time in getting out and this makes for efficiency. About the next simple lock used is shown in "B," where the cornice covering is hooked over the edge on the upper fillet. This then is hammered down to a more acute angle so as to act as a grip causing the water to flow off instead of following the mouldings to the lower fascia. One of the objections met

with in detail "A," also "C," is where the water from the cornice covering is permitted to run over and down the moulding. When the paint becomes weathered away and rust spots appear, the rust streaks are then carried on across the moulding in the front of the cornice; which always makes a very unsightly appearance and is no credit to any cornice job. Joints as at "C" are also frequently used because they enable hanging the cornice more readily and also give less trouble in attaching the cornice covering.

Another popular lock is shown at "D" where the edges clamp down and notched in and the tap turned back on itself. This causes the

metal to lock together and prevents the joint opening up. Joints of this kind can be used where the crown mould is rather large and it is convenient to make a joint below the reverse ogee as in section "A." Another joint frequently made is shown at "F" and also "H." The former "F" is also notched in and the edge turned back on itself as "D"; while the joint "H" is a hammered lock and is serviceable in that it sheds the water and holds the edge in position.

Where a cornice bed mould is attached to a tower or on the side of a bay window or such other position locks as at "G" are made which enables slipping the panel sheets underneath after the cornice has been



Pattern Showing Longitudinal Cornice Seams When Correctly Made.



set and nailed through the lower slip lock. Then again some folks make joints as shown by "I" where a slip lock is made and riveted in position. This, of course, makes a great deal of work, but a secure job. A novel method of setting a cornice after the brick work has been put up is shown by "K." This is where a strip is corrugated in the cornice brake and set in position while the brick work is going up. Then afterwards the cornice is slipped in the lock and nails are driven through to hold in position. This method is handy for keeping the lower edge straight, and if the lock is not open too wide, will be quite rigid and durable. But if the lock is opened so that an angle to the edge is produced, then with the vibration of the building, it is possible for the lock to open wider and in that way cause the joint to open and pull apart. Sometimes seams can be made as at J, which is, no doubt, satisfactory if well soldered; the entire groove should be well sweated, so that there can be no chance of breakage or water creeping in. Along this line numerous other designs can be created and are used.

In the making of cornice miter joints the modern mechanic has got somewhat out of the practice that the old timers used to follow rigidly. This is why today most men allow lugs on one side of the cornice piece and solder that to the other side, which, of course, is all right only that it does not make as sharp a joint as would look well from a close view. The older mechanics always used to carry strips of zinc with them and would always strip their cornice miters even though one or two lugs were used in large curved mouldings. Sometimes in addition cross braces as at "L" shown by section -a- were used. This always held the miters rigid and prevented expansion and contraction from breaking them open.

The poor accounts on your books may represent the profits on the year's business. You must find some way to avoid losses on such accounts.

## ***Wanted—An Apprentice, Dead or Alive; but Are You Going to Catch and Hold Him?***

***Martin C. Koeberle Calls Attention to Scarcity of Young Men in Sheet Metal Trade and Wants You to Do Some Thinking on This Matter.***

THE following letter from our good subscriber, Martin C. Koeberle, of the Koeberle-Heyer Company, Sumner, Iowa, touches on one of the most important problems of the sheet metal trade, and the article which Mr. Koeberle suggests that we publish contains so much solid sense that we are glad to give space to Loth.

Mr. Koeberle's letter follows.

TO AMERICAN ARTISAN:

Inclosed please find a clipping which I have taken from the *Wood Worker*, which will explain itself. As I am very much interested in the betterment of our profession and the welfare of the future, this article to my notion is worth the passing along, as the argument is original and is worthy of some thought, as we are up against the same problems as our friends, the Wood Workers.

I take three other trade papers, besides AMERICAN ARTISAN, but always look forward with much pleasure to the time when the new copy is due. Wishing you much success in the splendid work you are doing for the betterment of our trade in general, I remain,

Yours respectfully,

MARTIN C. KOEBERLE.

The article referred to by Mr. Koeberle appeared in a recent issue of the *Wood Worker* and was written by Waldo Clement:

**Wanted—One Apprentice, Dead or Alive.** The much-discussed apprentice question will never be settled unless we change our state of mind regarding the overalled mechanic, and issue some propaganda that will tend to give him the importance he deserves in the eyes of the coming generation.

BY WALDO CLEMENT.

A great deal is being written and spoken these days about the unparalleled scarcity of apprentice boys in the different trades, and various suggestions offered as to the best manner of luring the shy and impressionable youth into the shops, where

he can learn to use his hands and brain and carry a folding rule in his leg pocket, like Uncle Bill. The old fellows are dropping out one by one and becoming unreliable. They like to stay home every few days, nursing a rheumatic leg or sitting on the back porch relating what wizards they were with the band saw and how many thousand feet of lumber per hour they could shoot through the molder, making the changes and set-ups without stopping the machinery.

But that doesn't help the matter any. What we want is someone to take their places and keep the wheels turning; not that we expect them to equal the records made by the old-timers, but to whirl in and do the best they can according to their limitations. They can't do it in a day, however. A young man who has spent his time and energy in learning to pilot a city ash wagon or shoot craps behind the railroad station, cannot expect to amble airily up to an intricate and costly machine and turn out sash and doors and cellar stairs, right off the bat, without previous experience. If he does, there are bound to be some happenings in his young life he will remember for some time after he leaves the hospital.

There seems to be a general impression among the uninitiated, that the wood-working trade isn't much to speak of anyway. Apparently it is considered almost on a par with the real estate business, inasmuch as a man who has made a failure of everything else can take it up at any time of life, and by exercising a little imagination and a good deal of gait, making a howling success, even with an entire absence of brains.

A middle-aged man came into the shop where I was working several to learn the business from the years ago, and stated that he wanted

ground up. He was fresh from pitching timothy and milking cows and was full of bull strength and confidence in his ability to make good. He made the statement (in strictest confidence to every one within hearing), that if he couldn't learn to run every machine in the shop within three months he was years ago, urged the formation of perfectly willing to eat his hat, and also his shirt if anyone still doubted his ability.

The boss looked him over and inquired if he was familiar with machinery. "H—I, yes," he replied, "I worked in a cider mill two seasons," and he bit off a chew of tobacco, as if any further comment was superfluous.

away from the planer and he was

They put him to work taking told that if he showed any signs of mechanical ability he would be given a machine and allowed to try his hand as soon as there was a vacancy. He was a good man behind the planer, or in any place where lifting and carrying was concerned, but when it came to mechanical genius he was equal to a dead flounder. They gave him a fair show and let him try most everything, and when he went back to the farm the next season he knew about as much about wood-working as a striped snake knows about chilblains. It requires years of experience to make a good machineman, and even then many of them don't qualify.

We hear a good many squawks from professional men regarding the time and effort required for their training in comparison with the mechanic, whom they imagine can learn his trade in a few weeks and then be able to command enough wages to keep the doctors, lawyers and rent profiteers from carting off his furniture. One of these chaps might pay \$50 for a fine piece of furniture built by an expert mechanic, and then while pawing the air and ranting about the exorbitant wages paid the common laborer, turn around and present a bill for \$150 (after the funeral) for treating an unfortunate patient for spinal meningitis, when in reality he had a broken

back from trying to make both ends meet.

It is not customary for us to make these comparisons between a good mechanic and a bum practitioner, because it isn't supposed to be done. The trouble is that our viewpoint is slightly out of focus at times. Most of us are generally too lazy to think along original lines, so we accept the line of thought invented by some guy who was looking out for his own personal interests, and bottle, and when he isn't engaged in spread it about as gospel truth.

I hear someone inquiring, in a bored tone, what all this preamble has to do with the apprentice problem. Simply that we seem to be in danger of becoming a nation of lily-handed pink-tea performers unless we change our state of mind regarding the overalled mechanic and issue some propaganda that will tend to give him the importance he deserves in the eyes of the coming generation.

In nearly all the popular fiction of today it is the cake-eating dude who carries off the bacon. Seldom do we see the hero as simply an ambitious and skillful tradesman—and who remains so until the tangled skein of romance is wound into a snug and useful ball of yarn. Quite often they are allowed to start that way, but their vaulting ambition and keen insight into the business always leads them to a mahogany desk in the inner office, where, attired in an immaculate business suit and sheer silk socks, they spend their time in signing small pay checks for the plodding employe, and mailing large dividends to the stockholders who are summering at Atlantic City.

It is a laudable ambition, of course, and if he can hold the job we are all glad he landed it, but at the same time we must not lose sight of the fact that if it were not for the plodding employes, who either elected to or were forced to stay in the ranks, he wouldn't have any use for the mahogany desk, and those expectant stockholders might be summering—and wintering—at the city home.

I take the motion picture produc-

ers; they are supposed to dish up life red-hot from the griddle, and the nearer it runs to the true course of nature the more appealing it is supposed to be. How about it? How many heroes are depicted on the screen in overalls and blue shirts—except in comedy. Most generally this hero chap has hands like a miliner and a head like a vacuum driving a high-powered car at 61 miles, over a drawbridge that "ain't there," he can be seen in an open-faced vest and spike-tailed coat, chatting animatedly with the only daughter of a millionaire soap manufacturer, in the palace at Hoboken, N. J., and acting just as if he had been brought up in such luxurious surroundings. There you have it—more white-collar stuff.

Day by day this insidious propaganda is being flared in our faces, without the necessity for words to drive it home. Young Willie looks out of the parlor window and sees dad and a dry-goods clerk walking home after the day's work. Clerk is attired in a checked business suit, white shirt and Panama hat, and his pants have a crease in them fore and aft, like a paper napkin. Dad jogs along beside him with two patches on his pants, a blue shirt and a brown derby he found in the attic. Willie draws his own conclusions and plots out a career as a well-dressed clerk, although of course he doesn't know yet that Dad's pay en-about double that of his companion.

The writer knows of two young fellows who finished school and secured jobs at the same time. One learned a good trade, and today has a home of his own and drives to work in his car. The other fellow "accepted a position" in a bank, which fact was duly heralded in the local paper, giving his full name and address, also mentioning his parents and the fact that he had an uncle in Omaha who once drove here in a Buick car. The kindly and optimistic writer predicted a brilliant career for this ambitious young man in the banking world, but it is a fact that he and his wife are still living in their three-room flat on Water street, and they both consider they



are hitting the high spots when they can see their way clear to attend the movies twice a week.

Mother wants her boy to become a lawyer or a minister, or something of that sort, and he is fed up on that stuff until his natural instincts lie down and take the count, or else fate takes a hand and chucks him into a job that will satisfy his creative leanings, but possibly minus the white laundry trimmings.

After all, so far as the white collar is concerned, there is no closed season for mechanics in this country and it isn't at all necessary for him to look like a ragpicker in public. If he wants to put on a white collar while going to work, the chances are he will look tully as neat and intelligent as the chap who empties the wastebasket or fingers

the adding machine in the office. As a general thing, the neater a man is in his personal appearance the neater he will be about his work.

When the spur of necessity finally drives the coming generation into thinking along more original lines, perhaps we will have fewer punk lawyers and other professional non-producers and more first-class mechanics to keep the wheels turning.

Mr. Koberle, by the way, does not confine himself to sheet metal, for he does plumbing and heating, sells water and electric power and light systems for farm homes, so he manages to keep fairly busy, but not so busy that he has no time for reading the best business papers in his field—he reads *four*, so you will notice from his letter.

## *Buckwalter, the Circulant Georgian, Is Determined to Have His Pound of Flesh from Frye.*

*Asks Professor Fisk to Show in What Respect Frye's Method Is More Restricted for Practical Purposes Than the Method He Advocates.*

HARRY FRYE'S "Circle Con- test," though "Closed" by him, is still active, the latest entry, Professor Thomas S. Fiske contending the method of Mr. Frye used is not so good as the "Pons" method, which the writer and others submitted months ago and recently by William Scott, "On the Blue Juniata." Our professor claims "Pons" affords a "Simpler and more efficacious" method—a statement that may well be challenged, and, having "Evidence" not heretofore submitted, an appeal for a new trial is in order.

Mr. Frye properly objected to solutions submitted, as he did not request a method, but an explanation of his method: Mr. Frye stated, in making objection, that the triangles used in one instance were not similar to those used in the other, that "Pons" did not apply, and in his March 22nd explanation he made use of an obscure theorem, a complicated, confused solution, it gave the impression the confusion was intentional and for the purpose of

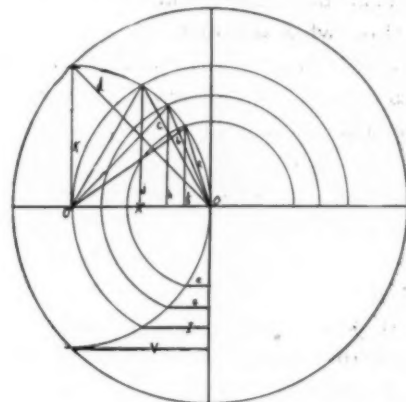
arousing further interest and discussion, but as he "closed" May 3rd, disclaiming his method was better or shorter than others, it appears Mr. Frye failed to realize the adaptability and importance of that method, which requires but a fraction of the work needed by Professor Fiske and this fraction may be reduced fully half, a solution surprisingly "Simple and Efficacious," for which space is requested and to assist in clearing up other interesting features not yet considered.

Mr. Frye imposed the condition that no values shall be given the circles to be added: It then follows he is not justified in considering or using any function of one circle as a part of the corresponding function of another unrelated circle—they cannot be dependent and independent at the same time or under the same conditions, yet Mr. Frye used the projection of chord (a), denoted by (e), as a part of projection of chords (b) and (c), which, being integral, are not subject to division under the conditions imposed.

We may retain (e), but use (G) and (I) to represent (e plus g) and (e+g+i) respectively, dispensing with that overload of double crosses.

Certain principles should be clearly stated and as the base circle and its mate automatically form an equilateral, the sine represented by (j) is also automatically determined, and, in turn, sine (j) automatically equally divides the equilateral and the common base, which, thus divided automatically determines projection of chord (c) (or its representative, depending on the number of circles to be added) so it is clear that projection of chord (c) equals  $c-2$  or its equal  $X-2$ .

All the chord projections must be used: Mr. Frye did not explain why he "stepped off" from sine (j)



instead of from common center O, from which point these step-offs must be taken.

Taken in regular order the chord projections are (e), G and I and each is the measure of the corresponding "step-off" and just so that all are used, the result will not be affected if the regular order be reversed and as (I) is the last, it may be used first, and, as it is automatically determined and automatically located—already in position on the base, it need not be disturbed, but since its limit is sine (j) and already used, the other "step-offs"—(e) and (G) must be taken from (j).

Let us consider sines (f), (h), (j) and (k): Notice that each is common to two adjacent triangles to which "Pons" applies, though Mr. Frye preferred to use an obscure theorem—he claimed "Pons" would not serve, and as the same



principle is involved in each sine, one illustration is ample: Take (h2) equals (b2—G2) also equals (X2—(X—G) 2) and an easy, short reduction shows (b2) equals 2XG—the same process secures (a2) equals 2Xe, (c2) equals 2XI and, of course (d2) equals 2X (sum of e, G and I): Eliminating common factor we have a2 plus b2 plus c2 equals d2—ready to be used if you have need for it.

A suggestion as to laying off: Take (e) on dividers, then open to include (G), then take (I), and by one operation, laying off from common center O locate sine (k). Or preferably, take a strip of paper, marking on the edge e, G and I, end to end, and use from O, securing and preserving a record for comparison and verification.

Now, what are projections (e), G and I? They are versines of angles, center O and represented by portions of base circle arcs—interceptions represented by chords (a), (b) and (c), so we find this problem only requires the determination of arc intersection points, which, when projected right across to vertical axis through common center O, show the "step-offs" in true length and separated, ready for laying off, as shown in quadrant 3.

For practical use no angles, chords, radii or verticals need be drawn, and to convince Professor Fiske, consider this: Take radii, 3, 4, 5, 6, 8 and 10 and use 3, 4, 5, 6 and 8 twice, a total of eleven circles: By the modification of Mr. Frye's method as indicated, these circles may be treated as one group, or unit, the resultant radius being 20.

Will Professor Fiske kindly show in what respect this method using such units, is restricted in the use of such units, for practical purposes, more than the method he advocated—eleven circles affording a good start, might we not use 25, 50 or more?

Fifty years ago the writer was a freshman, blessed with a professor in mathematics who invariably demanded proof, his favorite expression being, "Yes, but the ob-

jector says," etc. A "Conscientious Objector," he was though. "The Boys" considered him a conscienceless objector. It is well to "prove all things, hold fast to that which is good."

A. A. Allen has not been overlooked: He seemed to be misled in some way, due perhaps, in that he did not understand if he used or laid off ALL the projections, he should start at Common Center O. Had he measured correctly he should have had no trouble.

Reverting to Mr. Frye: He used the expression base chord (j), which, as already shown, is a sine, not a chord, or only half a chord. So, if you know how, or why, It's just easy as pie,

And if you keep them straight, Figures do not prevaricate.

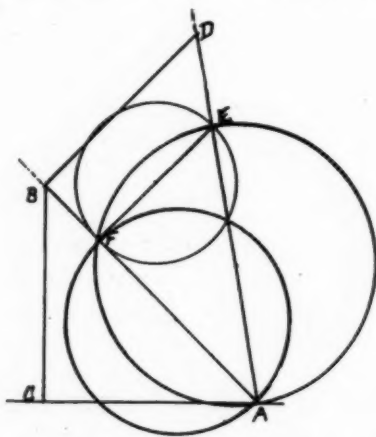
Now, elevate your vociferate, "Atta Boy," "Hoot mon," ejaculate. Cut out all our rough slams And agitate our diaphragms.

J. P. BUCKWALTER.

Macon, Georgia.

### *Finding the Diameters of Pipes by Means of a Square.*

In the issue of AMERICAN ARTISAN for May 24, page 23, there appeared a problem the object of which was to replace a single pipe



Diameter by Means of a Square.

by two pipes having a combined area of the pipe displaced. The diameters of the replacing pipes were to be found by means of a square.

One solution to this problem has already been worked out by William

Scott, Juniata, Pennsylvania, the author of the problem as follows:

TO AMERICAN ARTISAN:

Construct right triangle CAB with equal legs and any convenient size. Draw AB. Draw BD equal to BC and perpendicular to AB. Draw AD. Then on AD from A lay off the diameter of the original large pipe, making AE. Draw EF perpendicular to AF.

Then AF and EF will be the diameters of the required pipes.

WILLIAM SCOTT.

The solution of this problem is probably O. K., but it does not go far enough. In the vernacular of our school day it wouldn't get by the "old math prof" without a proof for each step of the way.

### *Iowa Sheet Metal Contractors Will Hold Four District Meetings in June.*

Group meetings will be held as follows by the Iowa Sheet Metal Contractors' Association:

District 5, at Oskaloosa, June 4th; Chairman, C. H. Graham, Oskaloosa.

District 6, at Muscatine, June 6th; Chairman, O. W. Ilten, Cedar Rapids.

District 3, at Sioux City, June 11th; Chairman, J. E. Johnson, Sioux City.

District 4, at Council Bluffs, June 13th; Chairman, Peter Hansen, Mission Valley.

Meetings were held by Districts 1 and 2, at Dubuque and Algona, May 22 and 28, respectively, both with good attendance.

The districts are arranged as follows:

District 1—Counties of Howard, Chickasaw, Bremer, Black Hawk, Winneshiek, Fayette, Buchanan, Allamakee, Clayton, Delaware and Dubuque.

District 2—Counties of Kossuth, Humboldt, Webster, Winnebago, Hancock, Wright, Hamilton, Worth, Cerro Gordo, Franklin, Hardin, Mitchell, Floyd, Butler and Grundy.

District 3—Counties of Lyon, Sioux, Plymouth, Woodbury, Osce-

ola, O'Brien, Cherokee, Ida, Dickinson, Clay, Buena Vista, Sac, Emmet, Palo Alto, Pocahontas and Calhoun.

District 4—Counties of Monona, Harrison, Pottawattamie, Mills, Fremont, Crawford, Shelby, Montgomery, Page, Carroll, Audubon, Cass, Adams, Taylor, Greene, Guthrie, Adair, Union, Ringgold.

District 5—Counties of Boone, Dallas, Madison, Clarke, Decatur, Story, Polk, Warren, Lucas,

Wayne, Marshall, Jasper, Marion, Monroe, Appanoose, Tama, Poweshiek, Mahaska, Wapello, Davis.

District 6—Counties of Benton, Iowa, Keokuk, Jefferson, Van Buren, Linn, Johnson, Washington, Henry, Lee, Jones, Cedar, Muscatine, Louisa, Des Moines, Jackson, Clinton and Scott.

All sheet metal contractors, whether members or not, are welcome at all and any of the district meetings.

## Sheet Metal Contractors in Battle Creek, Michigan, Go After Business Aggressively

*Five of Them Use Advertising Space in the Local Newspapers to Boost Sales of Eaves Troughing.*

YOU ALL know the old song about "Apple Blossom Time in Normandy." Everybody sang it, hummed it, whistled it, strummed it on the mandolin, punished the piano with it, and if we had had saxophones and ukeleles, it would have been used on them, too. You knew it was Apple Blossom Time in Normandy.

Well, in Battle Creek, Michigan, it is "Eave Trough Time," and the

sheet metal contractors are not backward about letting their neighbors know about it, as evidenced by the accompanying illustration which shows not less than five double-column advertisements soliciting eave trough work.

It is safe to say that the five contractors who used these advertisements will secure the greater portion of the business in that line this summer, at least.

But what was the matter with the other sheet metal contractors in Battle Creek? Did they not want any of the eave trough business, or did they figure that when it was time to renew the old eave trough Mr. Houseowner would naturally tell them to come up and fix it right away?

Well, business is not being done that way any more to any extent, boys. You have to hustle around and you have to be Johnny-on-the-Spot if you want to get somewhere near your share of the work in your line.

Incidentally, we are not going to pick these five advertisements to pieces. They all serve the purpose. Some better than others. You might look them over and select the one you consider the best, also the poorest one. Then tell us about it and we will have a discussion that will do a lot of good.

*Time-Saving Rosin-Core  
Solder Put on Market  
By Chicago Solder Company.*

The advent of radio and other similar delicately constructed instruments depending for efficient opera-

**EAVETROUGHING**  
Lowest Price—Best Quality—Service  
**30 TO 60 DAYS**  
Time to Pay. 2% Off for Cash  
ESTIMATES FREE  
**INDEPENDENT TIN SHOP**  
MILL ROAD—VERONA  
Chas. Morse, Prop.

Estimates on  
**EAVE TROUGHING**  
Cheerfully Given Free  
SLATE ROOFING CARRIED IN STOCK  
SKYLIGHTS, VENTILATORS AND CORNICES  
We Specialize in  
**HEAVY SHEET METAL WORK**  
No Job Too Large or Too Small  
**SHOULDRICE BROS.**  
Phone 248

We Specialize in  
**Eave Troughing**  
Estimates Free  
Saved by Calling  
**G. E. FARNHAM**  
Phone 3796-W

**EAVE TROUGH**  
SPECIAL LOW PRICE OF 14c TO 18c  
on all houses contracted this week, an opportunity to really save money.  
Roof and Sheet Metal Repairing of all kinds  
**CRANDALL & HOLCOMB**  
Phone 3895-R

**CALL 599**  
**For Eavetroughing**  
SHEET METAL WORK  
AND REPAIRS OF ALL KINDS  
**CENTRAL SHEET METAL CO.**  
66 South Jefferson Ave.  
Call 599

Advertisements Run by Sheet Metal Contractors in Battle Creek, Michigan, Daily Newspapers—All Within Two Days, and All Soliciting Eave Trough Business.



tion upon firmly soldered connections, has brought with them of necessity a revolution in tools and equipment to handle this work with dispatch.

The Chicago Solder Company, 4201 Wrightwood Avenue, Chicago, has produced a novel form of solder, known as Kester Rosin-Core Solder, particularly for radio and other delicate electrical work.

The feature of this new form of solder lies in the fact that inside the hollow wire form of solder are tiny packets full of pure rosin flux. This flux, as will be readily understood, flows to the job bit by bit as the solder is used.

The solder is put up in two forms—the wire in 1-pound cartons, one, five and 10-pound spools and in 18-inch sticks. The wire is 3-32 inch and  $\frac{1}{8}$  inch in diameter, while the sticks range in diameter from 1-16 to  $\frac{1}{4}$  inch.

### *Who Says It Does Not Pay to Belong to an Association of Sheet Metal Contractors?*

Here is a very definite proof of the fact that membership in an organization brings direct benefits in a financial way:

The city council of St. Paul, Minnesota, has provided, by ordinance, for direct bidding and contracting with the city for all roofing, sheet metal and ventilation work. A large school building program is planned and the sheet metal contractors of St. Paul have received blank proposals and specifications direct from the city officials. In other words, the sheet metal contractors of St. Paul, in the future, will bid direct for work on city buildings, and will contract direct for them.

This state of affairs is due directly to the activities of the State Associations. It means that the sheet metal contractors, when bidding on such work, will know where they stand. If one is low, he will receive the contract. There will be no more jockeying on the part of general contractors. What is better still, he will get his money when due.

The good work of the State Asso-

ciation has gone farther than St. Paul. The State Board of Control has before it a petition to grant ventilation contractors the privilege of bidding direct with the state on all state work. This petition is receiving favorable consideration.

The new Building Code for Minneapolis will be a boon to the sheet metal industry of that city. Cheap work will be eliminated, metal cornices will come back. The new Code provides for the elimination of terra cotta and stone cornices.

The Minnesota State Association was organized less than a year ago. It promises to "raise the standard of business." The promise has been kept. It needs only the support of all the firms in Minnesota to raise the standard still higher.

Now, you sheet metal contractors in other states and cities—get busy. Join your Association and make yourself felt as a body of men with influence.

### *Carnegie Technical Institute Will Conduct Summer School in Sheet Metal, Heating and Ventilating Work.*

A large majority of the regular faculty staff at Carnegie Institute of Technology in Pittsburgh, says an announcement, will conduct the work of the summer school which opens June 16 and ends August 8, and which will include a variety of sheet metal, heating and ventilating courses. For some of the departments specializing in teachers' courses, however, several guest instructors and lecturers have been engaged to assist at various periods between June 30 and August 8, when the courses for teachers of Home Economics, Public School Music, Fine and Applied Arts and Manual and Industrial Arts are scheduled.

According to the report from Carnegie Tech, plans are under way to receive a record-breaking enrollment of summer students this year. The increasing popularity of the technical courses not only for teachers, but for undergraduates and others needing practical training, together with the unusual facilities

available at Carnegie for such instruction, are cited as reasons for the increase in inquiries from prospective students.

## Notes and Queries

### "Nokol" Oil Burner.

From Seibel Hardware Company, Sigourney, Iowa.

Can you tell us who makes the "Nokol" oil burners for furnaces?

Ans.—Nokol Company, 215 North Michigan Avenue, Chicago, Illinois.

### Repairs for "New Process" Cook Stove.

From Henry M. Hastings, Lexington, Illinois.

Where can I secure repairs for the "New Process" oil cook stove?

Ans.—From the manufacturers, New Process Stove Company, Division American Stove Company, 4415 Perkins Avenue, Cleveland, Ohio.

### "Mack" Ventilator.

From Henry Bireline Company, 121-123 North Walnut Street, Danville, Illinois.

Can you tell us who makes the "Mack" ventilator?

Ans.—The Cleveland Ventilating and Manufacturing Company, 1830 St. Clair Avenue, Cleveland, Ohio.

### "Buckeye" Chicken Brooder.

From Stove Dealers' Supply Company, Milwaukee, Wisconsin.

Can you tell us who makes the "Buckeye" chicken brooder?

Ans.—Buckeye Incubator Company, Springfield, Ohio.

### Flag Pole Trucks.

From Peter A. Degnan, 330 Bloomfield Avenue, Newark, New Jersey.

Who makes flag pole trucks for wood poles and iron pipe poles?

Ans.—George B. Carpenter and Company, 440 North Wells Street, Chicago, Illinois.

### Address of American Stove Board Company.

From Stove Dealers' Supply Company, 310 Chestnut Street, Milwaukee, Wisconsin.

Can you tell us where the American Stove Board Company is located?

Ans.—Chicago Heights, Illinois.

It sometimes happens that the parson who gets a \$10 marriage fee profits by the mistakes of others.



## Small Carpenter Tool Window Display Which Greatly Enhanced the Sale of Tools.

*Not Carpenters Alone, But Every Householder Is a Prospective Customer for a Set of Small Tools.*

**A** BRAHAM and Lot of biblical note got around the competition problem by getting together and agreeing to separate. "Them days, however, are gone forever." Business must remain on the ground and fight it out. And the business firm with foresight enough to take

tive powers of display windows. The panels shown are framed with small black mouldings. The drapes upon the elevations were black and loosely draped.

The sample boards upon which the tools were placed were covered with dark blue crepe paper.

venture. This thought has been emphasized strongly by the direct by mail lectures on advertising to children recently put out by the Associated Advertising Clubs of the World. These lectures emphasize: Children want their information in story form. The child's interest is



Carpenter Small Tool Window Display, Arranged by Dan P. Hill for the Ogden Hardware Company, Ashland, Kentucky.

advantage of the powerful, but inexpensive sales aid—the window display—has got the edge on his less enterprising brother, who has only hind sight.

A thoroughly studied window display has the unquestioned power to attract customers to the store. Its efficacy in this direction has been proved times without number. Why hesitate then about making a good thing? Why not put your wager on a sure thing?

The accompanying illustration shows how Dan P. Hill, advertising manager of the Ogden Hardware Company, Ashland, Kentucky, takes advantage of the sales and sugges-

This tool display was permitted to remain in the window for about a week, during which time, its maker states, it stimulated the sale of small tools to a large extent.

### *What a Merchant Needs to Know About Child Psychology.*

As the hardware man draws farther and farther away from the strictly hardware field and delves into the field of toys, he finds himself under obligation to learn child psychology.

Let us say right here then that the outstanding emotional appeals for children are mystery and ad-

easily caught and as easily slips away. Waste not a word on non-essentials. Let there be no formal introduction—plunge in.

The best opening is to place before the child in one or two short sentences one or more of the leading characters in the story which shows him or her an interesting situation. With the beginning settled, the next thought is the body and there must be a plot—something to hold the child's interest. The plot must be simple, must keep up the interest so that the child will wonder what is coming next. The crisis must be led up to by holding the child in suspense, and then bang, the climax.

## *In The Spring, The House-Wife's Fancy Lightly Turns to Thoughts of Enamel Ware.*

*"The Kitchen Is The Heart of The Home—Renew it This Spring" Should be the Slogan for Selling Enameled Ware.*

THE following article contains some very good suggestions on the selling of enamel ware. It was contributed by Aldin D. Groff, Service Department of the Associated Manufacturers of Enameled Ware, 46 Cedar Street, New York: Oh, Spring is here again, the

For the hardware man spring is the time of greenbacks as well as green grass. Hope runs higher with the sap, but only the saphead lets hope go to his head. There are as many possibilities in spring business as there are worms on the ground after a shower, but the bird who

seeds every spring. These two merchandising ideas which the hardware dealer has learned in the last few years have coined money for him. Why not follow them up?

"The kitchen is the heart of the home—Renew it this spring!" should be the slogan with which the hardware dealer should inspire the housewife. When the man of the house is busy painting the window trim and the woman of the house is busy cleaning up the attic, then is the time to remind them that the kitchen is the most important room



Illustrating a "Crack" Window Display Designed for the Special Purpose of Pushing Enameled Ware Kitchen Utensils.

highbrow poets sing—and for the hardware men, the register's gay ring! Oh, listen to the birds that sing their joyful song—but listen to my words and housewares will go strong!

Let old Walt Mason go rhyme chasin' and Berton Braley sing more gaily—and Edgar Guest can do the rest. Let others rave about the rainbow while we divvy up the pot of gold.

starts early and keeps on pecking gets the biggest share.

Many, perhaps most, housewares dealers now have a spring sale. It has been a growing custom and a wise one, but like so many trade customs, the reasons for it are too

"New Homes for Old!" is the idea which is selling millions of cans of paint every spring. "Raise Your Own!" is the idea which is selling millions of packages of vegetable

of the house—especially when it comes to cleanliness.

A strong feature of your "Clean-Up and Paint-Up" campaign should therefore be a "renewal" drive. In every kitchen there are cooking utensils which have seen long and honorable service and should be retired to other duties. Just remind any woman whose house is being touched up or redecorated for the spring about new cooking utensils



and you will strike a ready response. Point out how little it really costs, compared to other expenditures, to have a fine new outfit of enameled ware in the kitchen.

Be specific—tell your customers what they ought to buy. It is surprising how long the average housewife holds on to an old tea kettle or coffee pot, and particularly such utensils as double boilers, where one part gets “used up” more quickly than the other. In this connection the semi-humorous note is often very effective, both in newspaper and circular advertising as well as in over-the-counter selling. In the case of the latter, for example, you can mention, in a casual kind of way, to one of your regular customers that you had been discussing with others the length of time their kettles have been in service. This will usually bring out some such statement as, “Oh, I have had my kettle over three years.” That, of course, is the best possible lead to a suggestion on a new kettle—and probably other utensils.

Besides the renewal idea, spring cleaning naturally requires equipment, and the enameled ware utensils should not be overlooked in selling brooms, brushes, vacuum cleaners, cleansers, etc. The enameled ware pail is indispensable in house-cleaning operations, and, as every good housewife knows from experience two pails should be used—one for scrub water and one for rinsing cloths and sponges. For this reason, sell pails in twos—some women prefer two different sizes.

Another good tip, which many housewives have not yet discovered, is the use of the tray. Many women, particularly young housewives, waste hundreds of steps going back and forth for things while they clean. The older women, who have learned the secret of quick and tireless work, carry things around with them on an enameled ware tray—bowls of disinfectants, polishes, cloths, etc. The enameled ware bowls are particularly handy at this time—the various preparations which make house-cleaning easier and more thorough are best handled

in these bowls, the impervious surface of which is not affected by solutions of disinfectants, cleaning chemicals, etc. When the cleaning operations last more than a day, these solutions can be most conveniently kept in the bowls (for which covers can be sold, too). And in preparing these solutions and in handling the very hot water which is often needed, nothing is more convenient than an enameled ware pitcher, particularly because the handles and noses can stand any kind of hard usage. For the proper cleaning of ornaments, vases, etc., and for the most comfortable washing of lace curtains, a large-sized enameled ware dishpan is ideal.

Here, then, are the ideas on which to base your spring selling of housewares, and they are bound to produce results, because they will strike the right appeal to the practical housewife. For example, one way of using these suggestions is to make up a “Spring Cleaning Outfit of Enameled Ware,” and offering it at a “special combination price.” Such a combination could be played up to

good effect in advertising and in window displays. This would include:

- 2 Pails (8 and 12 quart)
- 4 Bowls (various sizes)
- Pitcher
- Cup or mug
- Oblong tray
- Oval dishpan (large size)
- Small basin
- Soap dish.

Window displays in spring are of the utmost importance. Spring weather brings out the shoppers. During the winter weather people go to buy what they need; when the weather gets better, they go shopping for things. And enameled ware always makes a good window, particularly when a little care and attention is given to it.

These suggestions are embodied in the accompanying illustration of a suggested window display. Put in only those things appropriate to spring cleaning and which are tied up with your paint campaign. Give enameled ware a prominent position up in front.

## Who Is the Champion Journeyman Painter in Your City, County and State?

*Cleveland Master Painter Suggests That Contests Be Started Between Shops to Determine Championship.*

**W**ILLIAM A. DOWNIE, prominent master painter of Cleveland, Ohio, in his report as Chairman of the Save the Surface Committee of the International Association of Master House Painters and Decorators, in speaking of the value of publicity to aid public appreciation of the services rendered by the master painter, said:

“What I think we ought to start, gentlemen, is a contest to determine the champion journeyman painter of the country. We have champion golfers, ball players and prize fighters—why not an all-American Champion Painter?”

“The best method that I can think of in order to bring this contest about is to have each master painter in the city local associations select

from his crew of workmen what in his opinion is a champion painter. These shop champions would then compete according to rules and regulations to be laid down by the local association taken from our text books. By process of elimination the shop champions would compete for the city championship, and thus to state championship and eventually, national, and even international honors with prizes and cups as trophies donated for the purpose.

“The benefits of such a plan if it were brought about are many, namely: Abundant publicity would be secured through newspapers, magazines and periodicals. Interest in the painting business would be aroused in the public mind; pictures of the champions would appear in



print. It would attract lots of attention in our text book and it would tend to stimulate a desire to better the craftsman's ability. Speed as well as perfection, both of which would be requisites of a champion painter, would arouse a personal pride amongst the workmen, and reflect credit on the winning shops. It will place the painter on a higher level in the public esteem. "These are just some of the things that would result, I feel sure. Of course, the plan will need perfecting and ironing out before it is put into practice, but I want to submit it here and now for your serious consideration."

Referring to the industry's plans to lengthen the painting season Mr. Downie said:

"By means of national advertising the Save the Surface Campaign has instilled in more than six million minds the idea of interior painting to be done during winter months. That seed, properly sown, accomplishes an equalization of the painting seasons, and makes our work an all-year-round business. By clipping the high peak and filling in the lower level to the end that painting curves, if we must have them, will be gentle instead of abrupt, the industry will know surer profits, lower costs and greater volume, all of which benefits owner, supply men and painter alike.

"And again, if the painting season is spread over a longer period of time each year, it will help us in solving the apprentice problem. Even though we seem to get along without several thousand craftsmen, who statisticians say have dropped from our industry during the past ten years, this revolutionary idea lessens the tragedy of seasonal unemployment, makes steady work for the painter, lessens our expenses, partly does away with the necessity of hiring floaters and poor mechanics in the spring and fall, and—in a word, attracts good men to the trade."

When a man makes an ostentatious display of his wealth he advertises himself as an easy mark.

### Coming Conventions

Western Warm Air Furnace and Supply Association, Savery Hotel, Des Moines, Iowa, June 11, 1924. John H. Hussie, Secretary, 2407 Cuming Street, Omaha, Nebraska.

National Retail Hardware Association Congress, San Francisco, California, June 16, 17, 18 and 19, 1924. Herbert P. Sheets, Secretary, Indianapolis, Indiana.

Hardware Association of the Carolinas Convention, Wrightsville Beach, North Carolina, June 17, 18, 19, 1924. T. W. Dixon, Secretary-Treasurer, 717-718 Commercial Bank Building, Charlotte, North Carolina.

Convention National Association of Sheet Metal Contractors of the United States, Raleigh Hotel, 12th and Pennsylvania Avenue, N. W., Washington, D. C., June 17, 18, 19 and 20. Edwin L. Seabrook, Secretary, 608 Chestnut Street, Philadelphia.

Michigan Sheet Metal and Roofing Contractors' Outing to Quebec, July 19 to 26, 1924. Frank E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

Ohio Sheet Metal Contractors' Association, Southern Hotel, Columbus, Ohio, July 22 to 24, 1924. George F. Mooney, Secretary, 213 First National Bank Building, Columbus, Ohio.

Sheet Metal Contractors' Association of Pennsylvania, Pittsburgh, Pennsylvania, July 23, 24 and 25, 1924. W. F. Angermyer, Secretary, 714 Homewood Avenue, Pittsburgh, Pennsylvania.

Pennsylvania & Atlantic Seaboard Hardware Association Convention and Exhibition, February 16 to 20, 1925, at Philadelphia Commercial Museum. Sharon E. Jones, Secretary.

### Retail Hardware Doings

#### Arkansas.

The Hanna Hardware Company, Smackover, has removed from its former location to one of the brick buildings in the D. McDonald Building.

#### California.

The Christensen Hardware and Plumbing Company has opened for business at Palo Alto.

#### Illinois.

The hardware stock of J. S. Alexander, Golden, has been sold to Fruehling and Company of LaPrairie. Mr. Fruehling has removed the stock to LaPrairie.

#### Indiana.

The name of the Webber Hardware Company, LaPorte, has been changed to that of the Kabelin Hardware Company.

C. N. Barker has leased the rooms in the Castor Block, Noblesville, formerly occupied by the Economy Hardware store, and will occupy it with his hardware store some time during the summer, after some extensive improvements have been made.

#### Iowa.

The Peete Hardware Company, 525 Fifth Street, Sioux City, have moved

into new quarters at 521 Fifth Street. Joe Gilles has purchased the hardware stock of Gustave Ahiff and Company at Grand Mound.

F. J. Redden has purchased the South End Hardware store at Britt from John Holtorf.

At Oxford Junction, R. U. Ricklefs has purchased the hardware store, which, for the last two years, has been conducted under a trusteeship with F. H. Shimanek, G. W. Kone and Claude R. Porter, in charge.

#### Michigan.

The Blue Brothers Hardware store of Grant has been destroyed by fire.

A. E. Porter has purchased the Rothfuss and Howland Grocery and Hardware store in Blissfield and will take possession on June 1st.

The hardware store of William Curtis, Reed City, has been destroyed by fire.

#### Minnesota.

A. G. Gilmore of Winnebago will conduct a first class hardware store at Mapleton on June 1st.

William Auslander has sold his hardware store at Swanville to a man from Little Falls.

C. C. Gingery has purchased a substantial interest in the Jewel Hardware Company at Albert Lea.

S. A. Smith and Sons have purchased the hardware stock of Walter A. Schmidt at Renville.

E. O. Hanson, Astoria, is building to his house a hardware store.

J. Anderson of Little Falls has purchased the Hippie Hardware store at Upsala.

#### Missouri.

Harry Deacon has entered as a partner in the hardware business with his brother, D. O. Deacon, who has been conducting a store on the south side of the square, Butler, for a number of years.

#### Nebraska.

The Stanton Hardware Company of Wilcox has been purchased by John M. Zulauf.

#### Oklahoma.

T. S. Warren, Lone Wolf hardware dealer, has leased the Matthews Building on the west side of the square, Hobart, and has moved his stock of hardware and implements there.

#### Pennsylvania.

The Ruland Hardware Company of 1107 Parade Street, Erie, has been taken over by A. R. Scott and N. A. Dietzel, and will be operated as Scott-Dietzel Company.

The hardware store of Meyer and Weller at Newcastle is being remodeled and put in splendid condition.

#### Texas.

Cunningham Brothers is a new hardware concern at Corsicana, to be opened about September 1st. The members of the firm are Estill and Jack Cunningham, both formerly connected with the hardware firm of Tatum and Cunningham.

#### Wisconsin.

The L. C. Baker Hardware store of Whitewater has been sold to John Kaiser of Albion, Nebraska, who will take possession some time next month.

**Illustrating One-half of Hauck's Messenger.**



## Flanegin Hardware Puts on March Sale of Coal and Wood Burning Ranges.

*Attracts Trade to Sale with Deferred Payment and Free Offer with Sale Features.*

EVERYONE knows in a general way that a stove is made from some sort of iron or steel. The prospective purchaser also takes it for granted that the enamel on a stove is not affected by the heat; if it were, it would not have been used for that purpose.

On the other hand folks like to have their imaginations revitalized with talk about how a stove will look in the kitchen and how many good things can be cooked upon the stove.

This being the case, why not utilize our advertising space in the manner which will bring the greatest return for the money invested?

You say, how are you going to know which method will bring the greatest return? It's a speculative proposition. Yes, we'll agree that it's a speculative proposition, but so is life and why not go into each with a will to win, using the facilities we have at hand to the best advantage?

You've got to advertise not only to draw trade to the store, but to

meet competition as well, and the sooner this fact is grasped the sooner your sales are going to increase, because then the store owner will get down to business and learn what he's up against.

The accompanying advertisement was taken from the Logansport, Indiana, Tribune.

### *To Sell Stoves Put Them Where They Can Be Seen.*

Some stores where stoves are sold, afford effective demonstrations of how not to conduct a business.

The stoves are placed at the back of the store and probably only half discernible to the customers standing in the front.

They are crowded, perhaps dusty and lacking in polish, and littered with kitchen utensils and like articles. They are there to be sold, if you ask for them. But the dealer never questions you as to the likelihood of your needing a new stove, nor does he go to the pains of displaying his stock to stimulate latent trade possibilities and arouse interest. Yet he is surprised when the mail order houses take his trade away from him.

### *Is a Salesman Capable of Using Good Judgment?*

A man and his wife went to a hardware store to look at a range. The man did not give his wife a chance to ask a question. He refused to allow the salesman to explain the merchandise, insisting that all he wanted to know was the price. When told this he remarked that it was "a h—l of a price to pay for a few pounds of iron."

The salesman responded as quickly that when a doctor charged two dollars for a prescription it was "a h—l of a price to pay for a piece of paper." Then he explained that the customer was not buying iron but knowledge of how to use iron in range building. He sized his customer up as a bully and knew the only way to hold him was to use "bully" tactics.

## MARCH SALE

Of Porcelain and Semi-Porcelain

### Globe Coal and Wood Ranges

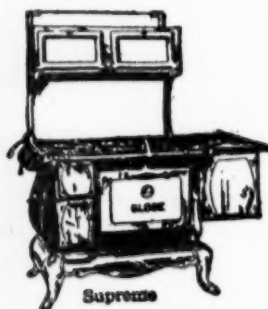
These ranges are handsome in appearance and at the same time practical and serviceable.

They are of cast iron construction, which makes them unusually durable.

The porcelain is not affected by heat and makes the work of cleaning quick and easy.

Polished cast top needs only to be wiped off with a cloth to keep it shining.

**Every Globe Range is Guaranteed to Operate Perfectly**



No. 218 Semi-Porcelain Supreme  
Cash Price \$90.00

No. 418 Gray Porcelain Sentinel  
Cash Price \$90.00

No. 118 Blue Porcelain Titan  
Cash Price \$103.50

No. 318 Gray Porcelain Supreme  
Cash Price \$112.50

**SOLD ALSO ON DEFERRED PAYMENT PLAN**

A Wear-Ever roaster given free with each of the above ranges during this sale.



## FLANEGIN HARDWARE CO.

THE WINCHESTER STORE

Phone 111

310 East Market Street

Stove Advertisement Embodying the Free-Offer-with-Each-Purchase Feature.



# Make Your Advertisements Stand Out Above the Level of the Page.

*They Should Be So Constructed as to Contrast with Other Advertisements on the Same Page.*

**M**AKE your newspaper advertisement contrast with those around it by giving it a different look—using white space, unique border or something that will cause it to stand out above the dead level of the page.

Newspaper advertisement writers are constantly in search of new ways of presenting the material. This,

In this way you acquire a reputation for having things distinctive and up-to-date. If they are looking for the best, they will come to you.

We are not going to pick these advertisements to pieces, as they perhaps served their purpose well, but we are using them together for purposes of contrast.

The Muchemore & Rider ad was

chant who instructs his clerks to resort to trickiness, are all losing their standing in the business world.

## STATION M. & R., PORTSMOUTH, N. H.

Before reading further dear friends, please give six long whistles, then gargle and clear your throat. Now you've tuned in.

ATLAS has requested us to lay off of paint for awhile and give him a chance to do a little home work.

So tonight we wish to remind you that we are a **HARDWARE STORE** and you know hardware means, everything you need around the house for repairing and building, such as **NAILS, SCREWS, BOLTS, ETC.** Also **SCREENING** for your windows this summer.

It doesn't look much like summer as yet, but **OLD FATHER TIME** has Spark Plug skun a mile for speed. Try us when in want.

## MUCHEMORE & RIDER CO.

Phone 1454

123 Market St.

too, should be the aim of hardware stores preparing their own copy for local papers. The advertisement must be made to stand out. Unless it does this, it becomes one of many other advertisements all around.

If each advertiser made this effort the result would be that each advertisement would attract and hold the attention of the reader.

It should be your object to determine what other ads are going to surround yours in the paper. Working from this point it will be much easier for you to individualize your advertisements.

taken from the Portsmouth, New Hampshire, *Times*, while the Dewey Hardware Company ad ran in the Kenosha, Wisconsin *News*.

\* \* \*

The great bulk of the retail business is done on the basis of confidence. And the merchant who misrepresents his goods, sells shoddy goods and cuts the price of certain merchandise to the point of losing money, and raises the price of other merchandise to offset this loss; and the merchant who indulges in dishonest advertising; and the mer-

## RADIO VISE



Knurled 2-in. Jaw, Square Slide, Steel Screw and Handle. A quality Vise at the price you want to pay.

Just the thing for  
Holding radio parts  
Gluing furniture  
Filing keys  
Anytime you need three hands.

How many times have you wished you had one?

## Radio Hand Drill

\$1.98 \$1.98

Twelve inches long, three jaw chuck, takes drills to 1-4-in., handmadedly finished.

## Pistol Grip Hack Saw

79c 79c

ADJUSTABLE 6-IN. TO 12-IN. BLADES.  
WORTH \$1.50 OF ANY MAN'S MONEY.

**Don't Delay—Our Stock Is Limited**



210 Park St.

Phone 22

# Business Sentiment Becomes Unsettled Because of Political Manoeuvres at Washington.

*Waiting for Adjournment of Congress and Conclusion of Republican and Democratic National Conventions.*

**"T**HAT business should have receded from the high level of March is not surprising, but that it should have receded to the extent that it has is surprising, and we join the majority in placing the blame on Congress," says C. S. Trench and Company.

"Operations in the steel industry have been reduced to below 60 per cent of capacity, and more or less corresponding reactions have occurred in the interrelated trades. Why? Because business sentiment has become unsettled by the manoeuvres of the politicians at Washington, which have not only brought about a state of political chaos but have also brought about a state of semi-paralysis in business.

"We merely echo the expressions of others when we say that business is mainly looking forward to two things—first, the adjournment of Congress and secondly, the conclusion of the Republican and Democratic national conventions. Until these have been accomplished, business is likely to merely mark time.

"When, however, the tax bill is ultimately passed, in whatever form, we shall know the worst, and the will to adjust ourselves to the conditions may bring some revival in a situation that is fundamentally healthy. But we shall still lack the impetus that better conditions abroad would furnish."

## Copper.

There was a better tone underlying the copper market the fore part of the week, but prices remained unchanged at from 12¾ to 12⅞ cents a pound for Electrolytic delivered.

Most of the producers have advanced their prices.

Sales at both limits of this range were reported and a slight rally was staged abroad in standard.

Domestic inquiry has increased, but so far the volume of actual buying is no larger than in the recent past.

## Tin.

Tin prices have dropped more than 17 cents since March and are still going lower.

In the domestic market last week spot and May Straits closed at about 39¾ cents and the later months at 39⅝ cents a pound.

Practically all positions of Straits shipments closed at 39⅝ cents except January-February and February-March which closed at 29½ and 39¾ cents respectively.

Another rally featured the tin market Monday and if it proves as abortive as the previous one it is not destined to last long.

In the domestic market the fore part of the week the level of quotations was raised by 1⅛ cents, spot and May Straits closing at 40⅞ cents and the later months at 40¾ cents a pound. Practically every position of Straits shipments closed at 40¾ cents.

## Zinc.

Towards the end of last week there were offerings of prompt Prime Western as low as 5.60 cents East St. Louis basis, but later there developed some buying interest at that price on the part of operators, evidently impressed at last by the extent of the decline. This interest has continued today, and 5.62½ cents is bid, the market being nominally 5.65 cents to 5.70 cents.

Bids from abroad also were reported at the week end, but the foreign limits were equivalent to only 5.50 cents East St. Louis basis.

London has assisted the firmer tone by an advance of 7s 6d per ton, though this hardly reaches the former level here from which we have advanced.

## Lead.

The St. Louis market for prompt shipment is steadier than in previous weeks with a fair movement of car-load orders.

Some producers report a good amount of business from consumers for June shipment, particularly in desilverized.

The figures reported for June show an unusual range, which may be due to buyers' preference as to certain brands on which producers have stoutly maintained prices.

Sales of June have ranged from below the spot East St. Louis market (6.65 cents to 6.70 cents), to as high as 7.00 cents East St. Louis basis.

## Solder.

Chicago warehouse prices on solder are as follows: Warranted, 50-50, \$26.50; Commercial, 45-55, \$25.75, and Plumbers', \$24.50, all per 100 pounds.

## Sheets.

Sheet consumers are limiting their purchases as closely as possible, buying in very small quantities and for the speediest possible delivery. A good sized tonnage has been telegraphed to mills.

Many consumers are buying from warehouse, a few tons at a time, when ordinarily they would be buying for direct mill shipment, and apparently they do not mind the extra cost involved. Opportunity is therefore being made for a decided upturn in demand upon the mills when buyers acquire some confidence.

There is no general change in the price situation, but there is a trend towards stability. For several weeks past the position has been that of the American Sheet & Tin Plate Company adhering to the old prices of 3.00 cents on blue annealed, 3.85 cents on black and 5.00 cents on gal-

vanized, a large number of independents adhering to prices precisely \$4.00 a net ton under these figures, and a number of independents going a little farther in their cutting.

In the past week the number going beyond a \$4.00 ton cut has diminished, there being now only about half a dozen. These mills do not have regular prices, but make prices in accordance with the desirability of the order.

Some of the mills that are quoting a \$4.00 concession usually do not always do this, sometimes making a greater concession on account of special conditions.

### **Tin Plate.**

Tin plate production continues at substantially the recent rate, while shipments for several weeks have been exceeding the production, reducing the amount of tin plate in mill warehouses.

Close estimates of the rate of tin plate production are impossible at the present time, as producers are unusually secretive.

It is to be noted in this connection that some inconsistent reports have been in circulation lately relating to operations at the same plant.

The best guess is that mill operations average about 75 per cent in point of turns worked, about 80 per cent of normal average capacity in point of actual tonnage output and about 80 per cent of average production during the first quarter of the year. These estimates are probably correct within five points.

All predictions early in the year were that there would be record packs of the canning crops, particularly corn, peas and tomatoes.

The bad weather, making planting late, has made it doubtful whether the packs would be so large, but has not proved that they will not be.

The receptive market for canned goods remains, stocks being well liquidated, so that there will be full packs unless physical conditions prevent.

### **Wire and Nails.**

Incoming business in wire products at the rate of about 50 per cent

permits operation at 60 per cent on the average. This comparatively high operating rate is reducing backlogs somewhat and while a few producers have 30 to 45 days' business ahead, this is not the rule. Some have orders on hand for only a week or two. Most makers have settled upon 2.65 cents and 2.90 cents base Pittsburgh, respectively, as the market prices for plain wire and wire nails. One maker claims still to be confining those prices to buyers of large lots. Jobbers are not ordering heavily in any one direction.

### **Bolts and Nuts.**

Keen competition exists over every inquiry that comes out for nuts, bolts and rivets. Because the available tonnage is spread so thinly operations are more limited and do

not average above 50 per cent of capacity.

Makers are endeavoring to hold the 60, 10 and 10 off discount on large machine bolts and 2.60 cents, base Pittsburgh, on structural rivets.

### **Old Metals.**

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$17.25 to \$17.75; old iron axles, \$24.00 to \$24.50; steel springs, \$18.00 to \$18.50; No. 1 wrought iron, \$11.50 to \$12.00; No. 1 cast, \$16.50 to \$17.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pounds: Light copper, 8½ cents; light brass, 5 cents; lead, 5 cents; zinc, 3¼ cents, and cast aluminum, 15 cents.

## ***Pig Iron Demand Shows Increase—Predictions Current that Price Bottom Has Been Reached.***

*Present Low Prices Have Resulted in Many Furnaces Going Out—Consumers Buying on Hand-to-Mouth Basis.*

IT IS the opinion of many that pig iron prices have just about, if not actually, reached bottom, and the sentiment in the market last week was an increase in demand, reported from New York, Philadelphia, New England, Buffalo, Cleveland and Cincinnati, while Chicago, Pittsburgh and St. Louis report no betterment.

In the Buffalo district there are 35,000 tons under inquiry, as against only 2,000 tons some three weeks ago, while in New York 15,000 tons were sold last week.

Pig iron prices declined from 50 cents to \$1 a ton quite generally last week. No. 2 foundry dropped 50 cents to \$20.50 valley furnace; in Cincinnati this grade is now quoted at \$25.05, and Chicago furnaces reduced their prices to \$22.50 to meet outside competition.

Basic iron is now quoted at \$20 valley furnace, although until recently sales have been made at slightly higher. Bessemer iron has sold as low as \$22 valley.

The American Radiator Company

is still in the market for 25,000 tons of iron, while the inquiry for 3,100 tons from Ingersoll-Rand is still pending. Melter's stocks are low, but there is more than 1,000,000 tons in merchant furnace yards. Only seventy-seven of the 129 furnaces in the Pittsburgh and nearby district are now blowing. One maker says of the situation:

"Pig iron and coke prices have settled to what seems to be the bottom. When pig iron can be bought at its bare cost of manufacture it always means that a change is coming.

"The present low prices have already resulted in many furnaces going out of blast, which means a great reduction in production.

"But as yet consumers have not shown any inclination to do more than buy in small lots—they send to the grocery store, as it were, for a loaf of bread every time they set the table. They have no confidence in the future, and so run along on a hand-to-mouth policy. This is not a stimulating condition.



# Chicago Warehouse Prices on Hardware and Metals.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

## METALS

### FIG IRON.

|                   |                |
|-------------------|----------------|
| Chicago Foundry   | 22 50 to 23 00 |
| Southern Fdy. No. |                |
| 2                 | 27 01 to 28 01 |
| Lake Sup. Char-   |                |
| coal              | 29 04          |
| Malleable         | 22 50 to 23 00 |

### FIRST QUALITY BRIGHT TIN PLATES.

|       |                  |         |
|-------|------------------|---------|
| IC    | 14x20 112 sheets | \$12 45 |
| IX    | 14x20            | 14 05   |
| IXX   | 14x20 56 sheets  | 17 57   |
| IXXX  | 14x20            | 18 12   |
| IXXXX | 14x20            | 18 65   |
| IC    | 20x28 112 sheets | 27 50   |
| IX    | 20x28            | 29 85   |
| IXX   | 20x28 56 sheets  | 16 15   |
| IXXX  | 20x28            | 17 20   |
| IXXXX | 20x28            | 18 25   |

### TERNE PLATES

|                             | Per Box |
|-----------------------------|---------|
| IC 20x28, 40-lb. 112 sheets | \$25 60 |
| IX 20x28, 40-lb. "          | 28 50   |
| IC 20x28, 30-lb. "          | 21 80   |
| IX 20x28, 30-lb. "          | 24 70   |
| IC 20x28, 25-lb. "          | 20 80   |
| IX 20x28, 25-lb. "          | 23 70   |
| IC 20x28, 20-lb. "          | 18 30   |
| IX 20x28, 20-lb. "          | 21 15   |
| IC 20x28, 15-lb. "          | 17 05   |
| IX 20x28, 15-lb. "          | 16 75   |
| IC 20x28, 8-lb. "           | 14 05   |

### COKE PLATES.

|                                  |                     |
|----------------------------------|---------------------|
| Cokes, 80 lbs., base, 20x28      | \$13 85             |
| Cokes, 90 lbs., base, 20x28      | 14 10               |
| Cokes, 100 lbs., base, 20x28     | 14 45               |
| Cokes, 107 lbs., base, IC        |                     |
| 20x28                            | 14 85               |
| Cokes, 125 lbs., base, IX        |                     |
| 20x28                            | 17 40               |
| Cokes, 155 lbs., base, 56 sheets | 9 75                |
| Cokes, 175 lbs., base, 56 sheets | 10 65               |
| Cokes, 195 lbs., base, 56 sheets | 11 70               |
| Base                             | per 100 lbs. \$3 50 |

### ONE PASS COLD ROLLED BLACK.

|           |                     |
|-----------|---------------------|
| No. 18-20 | per 100 lbs. \$4 50 |
| No. 22-24 | per 100 lbs. 4 55   |
| No. 26    | per 100 lbs. 4 60   |
| No. 27    | per 100 lbs. 4 85   |
| No. 28    | per 100 lbs. 4 70   |
| No. 29    | per 100 lbs. 4 75   |

### GALVANIZED.

|           |                     |
|-----------|---------------------|
| No. 16    | per 100 lbs. \$4 85 |
| No. 18-20 | per 100 lbs. 5 00   |
| No. 22-24 | per 100 lbs. 5 15   |
| No. 26    | per 100 lbs. 5 30   |
| No. 27    | per 100 lbs. 5 45   |
| No. 28    | per 100 lbs. 5 60   |
| No. 30    | per 100 lbs. 6 10   |

### BAR SOLDER.

|             |                    |
|-------------|--------------------|
| Warranted.  |                    |
| 50-50       | per 100 lbs. 26 50 |
| Commercial. |                    |
| 45-55       | per 100 lbs. 27 75 |
| Plumbers    | per 100 lbs. 24 50 |

### ZINC.

|          |       |
|----------|-------|
| In Slabs | 5 87½ |
|----------|-------|

### SHEET ZINC.

|                               |       |
|-------------------------------|-------|
| Cask lots, stock, 100 lbs.    | 11 75 |
| Less than cask lots, 100 lbs. | 12 00 |

### BRASS.

|                      |      |
|----------------------|------|
| Sheets, Chicago base | 18½c |
| Mill Base            | 16½c |
| Tubing, brazed, base | 24c  |
| Wire, base           | 16½c |

### COPPER.

|                              |      |
|------------------------------|------|
| Sheets, Chicago base         | 20c  |
| Mill base                    | 19½c |
| Tubing, seamless, base       | 32½c |
| Wire, No. 9 & 10 B. & S. Ga. | 16½c |
| Wire, No. 11, B. & S. Ga.    | 16½c |

### LEAD.

|              |         |
|--------------|---------|
| American Pig | \$7 37½ |
| Bar          | 8 37½   |

|            |                    |
|------------|--------------------|
| Sheet.     |                    |
| Full Coils | per 100 lbs. 11 25 |
| Cut Coils  | per 100 lbs. 11 50 |

### TIN.

|         |                    |
|---------|--------------------|
| Pig Tin | per 100 lbs. 43 75 |
| Bar Tin | per 100 lbs. 44 75 |

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

### ADZES.

|                   |     |
|-------------------|-----|
| Coopers' Barton's | Net |
| White's           | Net |

### AMMUNITION.

|                              |         |
|------------------------------|---------|
| Shells, Loaded, Peters.      |         |
| Loaded with Black Powder     | 18%     |
| Loaded with Smokeless Powder | 18%     |
| Winchester.                  |         |
| Smokeless Repeater           |         |
| Grade                        | 20 & 4% |
| Smokeless Leader             |         |
| Grade                        | 20 & 4% |
| Black Powder                 | 20 & 4% |
| U. M. C.                     |         |
| Nitro Club                   | 20 & 4% |
| Arrow                        | 20 & 4% |
| New Club                     | 20 & 4% |
| Gun Wads—per 1000.           |         |
| Winchester 7-8 gauge 10&7½%  |         |
| " 9-10 gauge 10&7½%          |         |
| " 11-28 gauge 10&7½%         |         |

### ASBESTOS.

|  |                 |
|--|-----------------|
| Paper up to 1/16                       | 6c per lb.      |
| Rollboard                              | 6½c per lb.     |
| Millboard 3/32 to 1/4                  | 6c per lb.      |
| Corrugated Paper (350 sq. ft. to roll) | \$6.00 per roll |

### AUGERS.

|                           |         |
|---------------------------|---------|
| Boring Machine            | 40&10%  |
| Carpenter's Nut           | 50%     |
| Hollow.                   |         |
| Stearns, No. 4, doz.      | \$11 50 |
| Post Hole.                |         |
| Iwan's Post Hole and Well | 35%     |
| Vaughan's, 4 to 9 in.     | \$15 60 |

### AXES.

|  |         |
|--|---------|
| First Quality, Single Bitted (unhandled), 3 to 4 lb., per doz. | \$14 00 |
| Good Quality, Single Bitted, same weight, per doz.             | 13 00   |

### BAR, CROW.

|                      |       |
|----------------------|-------|
| Steel, 4 ft., 10 lb. | \$ 30 |
| Steel, 5 ft., 18 lb. | 1 40  |
| Pinch Bars.          |       |
| 5½ ft., 24 lb.       | 1 60  |

### BAR, WRECKING.

|                 |        |
|-----------------|--------|
| V. & B. No. 12  | \$0 30 |
| V. & B. No. 24  | 0 42   |
| V. & B. No. 324 | 0 57   |
| V. & B. No. 30  | 0 48   |
| V. & B. No. 330 | 0 63   |

### BITS.

|                               |       |
|-------------------------------|-------|
| All Vaughan and Bushnell.     |       |
| Screw Driver, No. 30, each    | \$ 30 |
| Screw Driver, No. 1, each     | 18    |
| Reamer, No. 80, each          | 45    |
| Reamer, No. 100, each         | 45    |
| Countersink, No. 13, each     | 23    |
| Countersink, Nos. 14-15, each | 30    |

### BLADES, SAW.

|               |                      |
|---------------|----------------------|
| Wood.         |                      |
| Atkins 30-in. |                      |
| Nos.          | 6 40 26              |
|               | \$8 90 \$9 45 \$5 40 |

### BLOCKS.

|        |     |
|--------|-----|
| Wooden | 45% |
| Patent | 45% |

### BLOW TORCHES (See Firepots).

### BOARDS.

|              |          |
|--------------|----------|
| Stove.       | Per Doz. |
| Crystal, 32" | \$23 90  |

|                                |                 |
|--------------------------------|-----------------|
| Wash.                          |                 |
| No. 760, Banner Globe (single) | per doz. \$5 25 |
| No. 662, Banner Globe (single) | per doz. 6 75   |
| No. 801, Brass King.           | per doz. 8 25   |
| No. 860, Single—Plain Pump     | 6 25            |

### BOLTS.

|                            |          |
|----------------------------|----------|
| Carriage.                  |          |
| Small, roll thread         | 50-10-5% |
| Small and Large cut thread | 50-5%    |
| Machine.                   |          |
| Small, roll thread         | 60-5%    |
| Small, cut thread          | 50-10-5% |
| Stove                      | 70-5%    |

### BRACES, RATCHET.

|                        |        |
|------------------------|--------|
| V. & B. No. 444, 8 in. | \$4 54 |
| V. & B. No. 222, 8 in. | 3 89   |
| V. & B. No. 111, 8 in. | 3 55   |
| V. & B. No. 11, 8 in.  | 3 02   |

### BRUSHES.

|                            |        |
|----------------------------|--------|
| Hot Air Pipe Cleaning.     |        |
| Bristle, with handle, each | \$0 85 |
| Flue Cleaning.             |        |
| Steel Only, each           | \$1 25 |

### BURRS.

|                   |     |
|-------------------|-----|
| Copper Burrs only | 40% |
|-------------------|-----|

### BUTTS.

|  |        |
|--|--------|
| Steel, antique copper or dull brass finish—case lots—3½x3½—per dozen pairs | \$3 66 |
| 4x4  | 4 32   |
| Heavy Bevel steel inside sets, case lots—                                  |        |
| per dozen sets   | 7 80   |
| Steel bit keyed front door sets, each                                      | 1 90   |
| Wrought brass bit keyed front door sets, each                              | 3 25   |
| Cylinder front door sets, each   | 7 50   |

### CEMENT, FURNACE.

|                                |                   |
|--------------------------------|-------------------|
| American Seal, 5 lb. cans, net | \$ 45             |
| " 50-lb. cans, "               | 90                |
| " 25 lb. cans, "               | 2 00              |
| Asbestos, 5 lb. cans, net      | 45                |
| Pecora                         | per 100 lbs. 7 51 |

### CHAINS.

|                                      |          |
|--------------------------------------|----------|
| % in. proof coil chain, per 100 lbs. | \$8 50   |
| American coil chain                  | 40 & 10% |

### CHIMNEY TOPS.

|                              |           |
|------------------------------|-----------|
| Iwan's Complete Rev. & Vent. | 30%       |
| Iwan's Iron Mountain only    | 35%       |
| Standard                     | 30 to 40% |

### CHISELS.

|                            |        |
|----------------------------|--------|
| Cold.                      |        |
| V. & B. No. 25, ¼ in., ea. | \$0 26 |
| V. & B. No. 25, ½ in., ea. | 38     |
| Diamond Point.             |        |
| V. & B. No. 55, ¼ in.      | 0 33   |
| V. & B. No. 55, ½ in.      | 0 45   |

### Firmer Bevelled.

|                       |      |
|-----------------------|------|
| Round Nose.           |      |
| V. & B. No. 65, ¼ in. | 0 33 |
| V. & B. No. 65, ½ in. | 0 45 |

### Socket Firmer.

|                       |      |
|-----------------------|------|
| Cape.                 |      |
| V. & B. No. 50, ¼ in. | 0 31 |
| V. & B. No. 50, ½ in. | 0 62 |

### CHUCKS, DRILL.

|  |                  |
|--|------------------|
| Goodell's, for Goodell's Screw Drivers | List less 25-40% |
| Yankee, for Yankee Screw Drivers       | \$6 00           |

### CLAMPS.

|                         |              |
|-------------------------|--------------|
| Adjustable.             |              |
| No. 100, Door (Stearns) | doz. \$22 00 |

|              |                     |
|--------------|---------------------|
| Carpenter's. |                     |
| Steel Bar    | List price plus 20% |

|                                 |                 |
|---------------------------------|-----------------|
| Hose.                           |                 |
| Sherman's brass, ¼-inch         | per doz. \$0 43 |
| Double, brass, ¼-inch, per doz. | 1 20            |

### CLINKER TONGS.

|                  |        |
|------------------|--------|
| Front Rank, each | \$1 75 |
| Per doz.         | 18 00  |

### CLIPS.

|                                  |        |
|----------------------------------|--------|
| Damper.                          |        |
| Acme, with tail pieces, per doz. | \$1 35 |
| Non Rivet tail pieces, per doz.  | 35     |

### COPPERS—Soldering.

|                   |             |
|-------------------|-------------|
| Pointed Roofing.  |             |
| 3 lb. and heavier | per lb. 40c |
| 2½ lb.            | 45c         |
| 2 lb.             | 48c         |
| 1½ lb.            | 55c         |
| 1 lb.             | 60c         |

### CORD.

|                           |         |
|---------------------------|---------|
| No. 7 Std. per doz. banks | \$10 75 |
| No. 8 " "                 | 12 30   |

### CORNICE BRAKES.

|                        |     |
|------------------------|-----|
| Chicago Steel Bending. |     |
| Nos. 1 to 6B           | 10% |

### COUPLING HOSE.

|       |                 |
|-------|-----------------|
| Brass | per doz. \$2 20 |
|-------|-----------------|

### CUT-OFFS.

|                                 |     |
|---------------------------------|-----|
| Kuehn's Korrekt Kutoffs:        |     |
| Galv., plain, round or cor. rd. |     |
| Standard gauge                  | 40% |
| 26 gauge                        | 10% |

### DAMPERS.

|                        |        |
|------------------------|--------|
| "Yankee" Hot Air.      |        |
| 7 inch, each 20c, doz. | \$1 75 |
| 8 " " 25c, " "         | 2 40   |
| 9 " " 30c, " "         | 2 75   |
| 10 " " 35c, " "        | 3 00   |

|              |       |
|--------------|-------|
| Smoke Pipe.  |       |
| 7 inch, each | \$ 35 |
| 8 " "        | 40    |
| 9 " "        | 50    |
| 10 " "       | 60    |
| 12 " "       | 90    |

|                   |        |
|-------------------|--------|
| Reversible Check. |        |
| 8 inch, each      | \$1 50 |
| 9 " "             | 1 70   |

### DIGGERS.

|                                   |         |
|-----------------------------------|---------|
| Post Hole.                        |         |
| Iwan's Split Handle (Eureka)      |         |
| 4-ft. Handle, per doz.            | \$14 00 |
| 7-ft. Handle, per doz.            | 28 00   |
| Iwan's Hercules pattern, per doz. | 14 00   |

### DRILLS.

|                               |       |
|-------------------------------|-------|
| V. & B. Star, 12-inch Length. |       |
| ¼, 5/16 and ¾, each           | \$ 27 |
| ¾, each                       | 38    |
| 1, each                       | 57    |
| 1½, each                      | 85    |
| V. & B. Star, 18-inch Length. |       |
| ¾, each                       | 35    |
| 1, each                       | 47    |
| 1½, each                      | 73    |
| 2, each                       | 1 10  |

### EAVES TROUGH.

|                         |     |
|-------------------------|-----|
| Milcor                  |     |
| Galv. Crimpedge, crated | 75% |

### ELBOWS—Conductor Pipe.

|   |     |
|---|-----|
| Milcor                                  |     |
| Galv., plain or corrugated, round flat. |     |
| Crimp, Std. gauge                       | 65% |
| 26 Gauge                                | 40% |
| 24 Gauge                                | 10% |

|                    |     |
|--------------------|-----|
| Square Corrugated. |     |
| Milcor             |     |
| Standard gauge     | 50% |
| 26 gauge           | 30% |

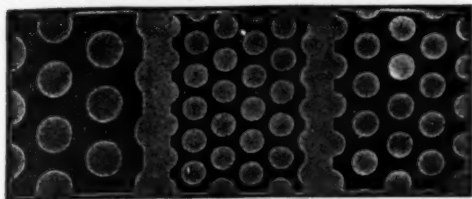
|   |         |
|---|---------|
| Fortice Elbows.                                     |         |
| Standard Gauge Conductor Pipe, plain or corrugated. |         |
| Not nested  | 70 & 5% |
| Nested solid  | 70 & 5% |

### ELBOWS—Stove Pipe.

|                              |        |
|------------------------------|--------|
| 1-piece Corrugated. Uniform. | Doz.   |
| 5-inch                       | \$1 40 |
| 6-inch                       | 1 50   |
| 7-inch                       | 2 00   |

### Special Corrugated.

|        |        |
|--------|--------|
| 6-inch | \$1 85 |
| 7-inch | 1 95   |

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All Sizes and Shapes of Holes  
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in two ways**



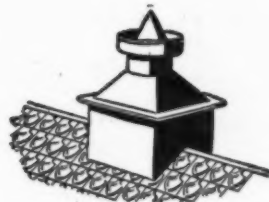
*Hand-dipped galvanized shingles*  
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the same uniform coating of zinc.

*Tight coat galvanized shingles*  
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Philadelphia Chicago

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| Uniform, Collar Adjustable. |             |
|-----------------------------|-------------|
| 5-inch                      | Doz. \$2 00 |
| 6-inch                      | 2 10        |
| 7-inch                      | 2 60        |
| WOOD FACES—50% off list.    |             |

| FENCE.      |         |
|-------------|---------|
| Field Fence | 61 1/2% |
| Lawn        | 52%     |

| FILES AND RASPS.    |          |
|---------------------|----------|
| Heller's (American) | 50-10%   |
| American            | 60-10%   |
| Arcade              | 50%      |
| Black Diamond       | 40-10-5% |
| Eagle               | 50%      |
| Great Western       | 50%      |
| Kearney & Foot      | 50%      |
| McClellan           | 50%      |
| Nicholson           | 50%      |
| Simonds             | 60%      |

| FIRE POTS.           |     |
|----------------------|-----|
| Ashton Mfg. Co.      |     |
| Complete line        |     |
| Firepots and Torches | 52% |

| Otto Berns Co.                                 |       |
|--|-------|
| No. 1 Furn. Gasolene with large shield, 1 gal. | \$ 75 |
| No. B Furn. Kerosene, 1 gal.                   | 15 12 |
| No. 10 Brazier, Kerosene or Gasolene, 10 gals. | 47 52 |
| No. 5 Torch, Gasolene or Kerosene, 1 pt.       | 7 92  |
| No. 53 Torch, Gasolene, 1 quart                | 5 40  |
| No. 86 Torch, Gasolene, 1 pint                 | 4 05  |

| Clayton & Lambert's.   |     |
|--|-----|
| East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas | 52% |
| West of above boundary line  | 48% |

| Geo. W. Diener Mfg. Co.                     |       |
|---|-------|
| No. 02 Gasolene Torch, 1 qt.                | \$ 55 |
| No. 0250, Kerosene or Gasolene Torch, 1 qt. | 7 50  |
| No. 10 Tinner's Furn. Square tank, 1 gal.   | 12 60 |
| No. 15 Tinner's Furn. Round tank, 1 gal.    | 12 00 |
| No. 21 Gas Soldering Furnace                | 3 60  |
| No. 110 Automatic Gas Soldering Furnace     | 10 50 |

| Double Blast Mfg. Co.                |     |
|--------------------------------------|-----|
| Gasolene, Nos. 25 and 35             | 60% |
| Quick Meal Stove Co.                 |     |
| Vesuvius, F.O.B. St. Louis           | 30% |
| (Extra Disc't. for large quantities) |     |

| Chas. A. Hones, Inc. |         |
|----------------------|---------|
| Buzzer No. 1         | \$ 9 00 |
| " " 2                | 12 00   |
| " " 22               | 13 50   |
| " " 42               | 15 00   |
| " " 43               | 19 00   |

| FREEZERS—ICE CREAM. |        |
|---------------------|--------|
| Peerless and Alaska |        |
| 1 quart             | \$2 95 |
| 2 quart             | 3 45   |
| 3 quart             | 4 10   |
| White Mountain      |        |
| 1 quart             | \$4 85 |
| 2 quart             | 5 65   |

| GALVANIZED WARE.           |        |
|----------------------------|--------|
| Pails (Competition), 8 qt. | \$1 95 |
| 10-qt.                     | 2 20   |
| 12-qt.                     | 2 46   |
| 14-qt.                     | 2 75   |
| Wash tubs, No. 1           | \$6 00 |
| No. 2                      | 6 85   |
| No. 3                      | 8 00   |

| GARAGE DOOR HARDWARE. |         |
|-----------------------|---------|
| Stanley               | All net |

| GAUGES.                |      |
|------------------------|------|
| Marking, Mortise, etc. | Nets |
| Wire.                  |      |
| Disston's              | 25%  |

| GIMLETS. |             |
|----------|-------------|
| Discount | 65% and 10% |

| GLASS.                        |          |
|-------------------------------|----------|
| Single Strength, A and B.     |          |
| all sizes                     | 83 & 85% |
| Double Strength, A. all sizes | 84%      |

| GREASE, AXLE.                    |         |
|----------------------------------|---------|
| Fraser's                         |         |
| 1-lb. tins, 36 to case, per case | \$ 4 70 |
| 3-lb. tins, 24 to case, per case | 7 80    |
| 5-lb. tins, 12 to case, per case | 7 20    |
| 10-lb. tins, per dozen           | 10 40   |
| 15-lb. tins, per dozen           | 13 80   |
| 25-lb. tins, per dozen           | 19 80   |

| HAMMERS, HANDLED          |           |
|---------------------------|-----------|
| All V. and B.             | Each, net |
| Blacksmiths' Hand, No. 0, |           |
| 26-oz.                    | \$0 87    |
| Engineers' No. 1, 26 oz.  | 87        |
| Farrier's, No. 7, 7-oz.   | 90        |
| Machinists', No. 1, 7-oz. | 64        |

| Nail.                                 |           |
|---------------------------------------|-----------|
| Vanadium, No. 41, 20-oz.              | each 1 42 |
| Vanadium, No. 41 1/2, 16-oz.          | each 1 42 |
| V. & B., No. 11 1/2, 16-oz.           | each 92   |
| Garden City, No. 11 1/2, 16-oz., each | 69        |
| Tinner's Riveting, No. 1, 8-oz., each | 71        |
| Shoe, Steel, No. 1, 13-oz.            | each 71   |
| Tack.                                 |           |
| Magnetic.                             |           |
| No. 5, 4-oz., each                    | 78        |

## HAMMERS, HEAVY.

|                           |        |
|---------------------------|--------|
| Farrier's, No. 10, 10-oz. | \$1 01 |
|---------------------------|--------|

## HANDLES.

| Axe.                       |      |
|----------------------------|------|
| Hickory, No. 1, per doz.   | 4 00 |
| Hickory, No. 2, " "        | 3 00 |
| 1st quality, second growth | 6 00 |
| Special white, 2nd growth  | 5 00 |

| Chisel.                  |                 |
|--------------------------|-----------------|
| Hickory, Tanged, Firmer  |                 |
| assorted                 | per doz. 55c    |
| Hickory, Socket, Firmer, |                 |
| Assorted                 | per doz. 70c    |
| File                     | per doz. \$1 20 |
| Hammer and Hatchet.      |                 |
| No. 1 per doz.           | \$0 90          |
| Second Growth hickory,   |                 |
| per doz.                 | 1 50            |

| Soldering. |        |
|------------|--------|
| Per doz.   | \$2 40 |

## HANGERS.

| Conductor Pipe.                              |         |
|--|---------|
| Milcor Perfection Wire                       | 25%     |
| Eaves Trough.                                |         |
| Steel hangers                                | 30%     |
| Triple Twist wire                            | 10%     |
| Milcor Eclipse Wire                          | 20%     |
| Milcor Triplex Wire                          | 15%     |
| Milcor Milwaukee Extension                   | 15%     |
| Milcor Steel (galv. after forming) List plus | 12 1/2% |
| Milcor Selflock E. T. Wire, List plus        | 40%     |

## HASPS.

|                               |     |
|-------------------------------|-----|
| Hinge, Wrought, with staples. | Net |
|-------------------------------|-----|

## HATCHETS.

| V. & B. Supersteel.      |        |
|--------------------------|--------|
| Broad, No. 1, 24-oz.     | \$1 53 |
| Half, No. 1, 15-oz.      | 1 23   |
| Half, No. 3, 27-oz.      | 1 44   |
| Claw, No. 1, 19-oz.      | 1 38   |
| Flooring, No. 1, 20-oz.  | 1 53   |
| Shingling, No. 1, 17-oz. | 1 28   |
| Lathing, No. 1, 14-oz.   | 1 28   |
| Lathing, No. 2, 17-oz.   | 1 33   |

| Vanadium Steel.            |        |
|----------------------------|--------|
| Half, No. 2, 22-oz.        | \$1 04 |
| Underhill Pattern Lathing, |        |
| 9 row, 19-oz.              | 2 14   |

## HINGES.

| Heavy Strap, in Bundles.  |        |
|---------------------------|--------|
| 4 inch, dozen prs.        | \$1 26 |
| 5 " " " "                 | 1 74   |
| 6 " " " "                 | 2 12   |
| 8 " " " "                 | 3 54   |
| Extra Heavy T in Bundles. |        |
| 4 inch, dozen prs.        | \$1 90 |
| 5 " " " "                 | 2 01   |
| 6 " " " "                 | 2 52   |
| 8 " " " "                 | 4 30   |

## HOES.

|        |     |
|--------|-----|
| Garden | net |
|--------|-----|

## HOOKS.

| Box.  |        |
|---|--------|
| V. & B. No. 1, each                           | \$0 26 |
| Conductor.                                    |        |
| Milcor  |        |
| "Direct Drive" Wrought Iron for wood or brick | 15%    |
| Hay.  |        |
| V. and B. No. 1, each                         | 26     |

## Bar Meat.

|                                |    |
|--------------------------------|----|
| V. and B. No. 26, 3/4", each   | 09 |
| V. and B. No. 28, 1 1/4", each | 16 |

## Screw Meat.

|                         |      |
|-------------------------|------|
| V. & B. No. 2, per gro. | 7 15 |
|-------------------------|------|

## Butchers' "S."

|                     |    |
|---------------------|----|
| V. & B. No. 6, each | 09 |
| V. & B. No. 8, each | 13 |

## HOSE.

| Per Ft.              |                |
|----------------------|----------------|
| 1/2-in. 2 ply molded | 12c            |
| 3/4-in. cord         | 8 1/2 c to 10c |
| 3/4-in. wrapped      | 14c            |

## HUMIDIFIERS.

| "Front-Rank," Automatic. |        |
|--------------------------|--------|
| In single lots           | 50%    |
| In lots of 10 or more    | 50-5%  |
| In lots of 25 or more    | 50-10% |
| Vapor pans, etc., each   | 50%    |

## IRONS.

| Sad.                                       |        |
|--|--------|
| Genuine Mrs. Potts, nickel plated, per set | \$1 55 |
| Asbestos No. 70, per set                   | 2 10   |
| Asbestos No. 100, per set                  | 2 30   |
| E. C. Stearns'.                            |        |
| No. OA Corner, doz. sets                   | \$2 50 |
| No. OB " " "                               | 2 75   |

## KNIVES.

| Butcher.                        |     |
|---------------------------------|-----|
| Beechwood Handles, 6-Inch blade | 25% |
| Beechwood Handle, 7-Inch blade  | 25% |
| Beechwood Handles, 3-Inch blade | 25% |
| Cooper's Hoop                   | 25% |

| Drawing.             |     |
|----------------------|-----|
| Standard             | 25% |
| Adjustable           | 25% |
| Barton's Carpenters' | 25% |

## Hay.

|                       |     |
|-----------------------|-----|
| Iwan's Solid Socket   | 25% |
| Heath's               | 25% |
| Iwan's Sickle Edge    | 25% |
| Iwan's Imp'd Serrated | 25% |

| Hedge.          |     |
|-----------------|-----|
| Challenge       | 25% |
| Disston's No. 1 | 25% |

| Putty.   |     |
|----------|-----|
| Common   | 25% |
| Lander's | 25% |

| Scraping.     |     |
|---------------|-----|
| Beech Handles | 25% |
| Lander's      | 25% |

## KNOBS.

| Door.     |                 |
|-----------|-----------------|
| Mineral   | per doz. \$2 00 |
| Porcelain | 2 00            |
| Jet       | 2 00            |

## LADDERS.

| Step.                       |     |
|-----------------------------|-----|
| Common, per ft.             | 28c |
| Common, with Shelf, add 10c |     |
| IXL                         | 34c |
| Challenge, 6 to 9 ft.       | 55c |
| 10 to 16 ft.                | 60c |
| Kant-Break, per lineal ft.  | 75c |

## LANTERNS.

| Per doz.                           |         |
|------------------------------------|---------|
| Monarch tin, hot blast             | \$ 8 25 |
| Dietz No. 2 cold blast             | 13 00   |
| Best tubular                       | 8 25    |
| Competition lanterns No. 0 tubular | 6 90    |

## LAWN MOWERS.

|         |        |
|---------|--------|
| 12-inch | \$5 20 |
| 16-inch | 5 85   |

| Ball Bearing.                |        |
|------------------------------|--------|
| 4 blade, adjustable bearing. |        |
| 14"                          | \$5 20 |
| 16"                          | 7 80   |

## LEATHER BELTING.

| From No. 1 Oak Tanned Butts. |     |
|------------------------------|-----|
| Extra heavy, 18-oz.          | 35% |
| Heavy, 16-oz.                | 40% |
| Medium, 14 1/2-oz.           | 40% |
| Light, 13-oz.                | 50% |

## LEATHER LACING.

|                     |     |
|---------------------|-----|
| Cut, strictly No. 1 | 45% |
|---------------------|-----|

## LEVELS.

|                        |         |
|------------------------|---------|
| Disston, No. 28 Asst.  | \$22 01 |
| " No. 18, 20 in., each | 1 32    |
| " No. 22, 24 in., each | 2 40    |
| " Shafting, 6 in.      | 19 30   |
| " " 6 in. gr. glass    | 24 30   |
| " No. 1 Asst.          | 5 75    |
| " No. 2 Asst.          | 12 40   |
| " 24-26 in., each      | 1 02    |
| " 28-30 in., each      | 1 00    |

## LIFTERS.

| Steve Cover. |                 |
|--------------|-----------------|
| Coppered     | per gro. \$6 00 |
| Alaska       | " 4 75          |

## LOCKS.

| Barn Door.       |                  |
|------------------|------------------|
| No. 60 Stearns'. | per doz. \$11 00 |
| No. 50 " "       | 20 00            |

## MALLET.

| Carpenters'.               |                 |
|----------------------------|-----------------|
| Fibre Head No. 2, per doz. | \$12 00         |
| " No. 3, " "               | 15 50           |
| " No. 3 1/2, " "           | 20 50           |
| Round Hickory, per doz.    | \$3.00—1 00     |
| Tinner's.                  |                 |
| Hickory                    | per doz. \$2 25 |

## MATS.

| Door.               |              |
|---------------------|--------------|
| National Rigid      | 5 & 10 & 15% |
| Acme Steel Flexible | 50%          |

## MITRES.

| Galvanized steel mitres, and caps, end pieces, outlets. |     |
|---|-----|
| Milcor  | 30% |
| Galv. one piece stamped                                 | 40% |

## MOPS.

| Cotton, Star (Cut Ends).       |         |
|--------------------------------|---------|
| Pounds 12' 15' 18' 24'-3-oz.   |         |
| Per doz. \$4 00 4 35 5 50 7 00 |         |
| Enterprise                     | 16 1/2% |
| Parker                         | 50 & 5% |

## NAILS.

| Cut Steel     | \$4 70 |
|---------------|--------|
| Cut Iron      | 4 70   |
| Wire.         |        |
| Common        | 3 10   |
| Cement Coated | 3 25   |

## NETTING, POULTRY.

|                           |        |
|---------------------------|--------|
| Galvanized before weaving | 45-10% |
| Galvanized after weaving  | 45%    |

## NIPPERS.

| Nail Cutting.  |        |
|----------------|--------|
| V. & B. No. 30 | 78c    |
| Double Duty.   |        |
| V. & B. No. 64 | \$1 02 |

## NOZZLES.

| Hose.   |                 |
|---------|-----------------|
| Diamond | per doz. \$5 75 |
| Magic   | " 9 80          |

## OILERS.

| Chase Pattern.   |         |
|------------------|---------|
| Brass and Copper | 10%     |
| Zinc Plated      | 40 & 5% |
| Railroad.        |         |
| Brass            | 20 & 5% |
| Coppered         | 50 & 5% |

| Steel.        |         |
|---------------|---------|
| Copper Plated | 70 & 5% |

## OPENERS.

| Delmonico         |              |
|-------------------|--------------|
| per doz.          | \$1 30       |
| Never Slip        | " 60         |
| Crate.            |              |
| V. & B., per doz. | \$7 25—11 00 |